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ABSTRACT

Assumptions, rationale, structure, personnel and physical requirements for a state-wide educational information system are investigated. The existing needs and resource status of educational information in Michigan are determined, and a physical and organizational network which should provide needed information services to educators is specified. The needs for a multi-level information system, interpersonal communication and tailoring of information products to the user's requirements and state level services with more local outlets are stressed. A literature search of the field of information services with particular emphasis on educational applications resulted in a stratified bibliography of 218 items. (MF)

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A PROPOSED
EDUCATIONAL INFORMATION SYSTEM
FOR THE STATE OF MICHIGAN

The report of a special study
carried on during July and August, 1969
under the auspices of
The Michigan State Department of Education

by

Dr. George H. Grimes
Supervisor, Curriculum Laboratories
Detroit Public Schools

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The Michigan State Department of Education
OCTOBER, 1969

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Abstract

The original impetus for an investigation of the feasibility, and the subsequent specficiation of the particulars, of an educational information system for the State of Michigan stemmed from the internal information requirements of the State Department of Education staff and from the expressed needs of educators in the field. The procedure followed was to determine the existing needs/resources status of educational information in the State and to then suggest a physical and organizational network which should provide and extend needed information services to educators. The information gathering procedures utilized were: structured interviews, an information system survey (questionnaire), small group feedback, an updating literature search, solicitation of expert opinion, and site visitations. A through investigation and explication of the process of information transfer and discussion of the content of an educational information system are also provided. An undergirding therotical rationale as well as a set of assumptions basic to the system are given. The assumptions were fed back to representatives of the primary user groups of the system for verification of appropriateness and operational potential.

The basic recommendations for the System are that:

1. THE ASSUMPTIONS BASIC TO THE SYSTEM SHOULD BE:

   a. THE SYSTEM SHOULD BE BUILT ON USER REQUIREMENTS. THE END PRODUCT OF THE SYSTEM SHOULD BE USER SERVICE.

   b. THE USER IS THE BEST JUDGE OF THE RELEVANCE OF AN ITEM OF INFORMATION TO HIS NEEDS.

   c. A "WARM AND WALKING COMPUTER TERMINAL" SHOULD STAND AT THE INTERSECTION OF USER REQUIREMENTS AND SYSTEM'S RESOURCES (INTERFACE DELEGATE).

   d. EASE OF ACCESS, CURRENCY OF INFORMATION, AND RAPIDITY OF SERVICE ARE CRITICAL. OF THESE, ACCESS TO THE HUMAN INTERFACE AGENT AND INFORMATION ARE THE MOST IMPORTANT.

   e. THERE SHOULD BE TWO-WAY VERTICAL ARTICULATION WITHIN THE SYSTEM (USER NEEDS TO MATERIALS AND MATERIALS TO USER NEEDS). THIS ARTICULATION SHOULD EXTEND BETWEEN AND THROUGHOUT THE FOUR NATURAL LEVELS OF A TOTAL EDUCATIONAL SYSTEM (NATIONAL, STATE, REGIONAL, AND LOCAL).

   f. THE MICHIGAN SYSTEM SHOULD CONCENTRATE ITS EFFORTS AT THE STATE AND REGIONAL LEVELS, WHILE ALWAYS TAKING INTO CONSIDERATION NATIONAL AND LOCAL NEEDS AND RESOURCES. EXISTING RESOURCES SHOULD NOT BE DUPLICATED, BUT, SHOULD BE COORDINATED AND SUPPLEMENTED. THIS COORDINATION SHOULD TAKE PLACE WITHIN THE STATE DEPARTMENT OF EDUCATION.

   g. THE SYSTEM SHOULD SUPPORT AND PROMOTE THE DEVELOPMENT OF LOCAL INFORMATION SYSTEM EFFORTS WHICH ARE CONSISTENT WITH THE PURPOSES AND STRUCTURE OF THE STATE-WIDE SYSTEM.

   h. THE SYSTEM SHOULD PROVIDE INTERNAL REFERENCE AND CURRENT AWARENESS SERVICES TO THE HOST AGENCY OR UNIT (STATE DEPARTMENT OF EDUCATORS, INTERMEDIATE SCHOOL DISTRICT).

   i. THE INFORMATIONAL CONTENT OF THE SYSTEM IS KNOWLEDGE IN ALL FORMS AND FORMATS. EACH FORM OF INFORMATION IS ASSUMED TO HAVE ITS OWN INTEGRITY, E.G. IT SHOULD BE USED WHEN AND WHERE IT CAN DO THE JOB BETTER THAN ANY OTHER FORM OF INFORMATION IN RELATION TO ITS PARTICULAR STRENGTHS AND WEAKNESSES.

   j. THE TECHNICAL FUNCTIONS OF THE SYSTEM SHOULD INCLUDE:

      - MATERIALS EVALUATION
      - ACQUISITION
      - TECHNICAL PROCESSING
      - STORAGE FOR RETRIEVAL
      - ACCESS FOR USE
      - EVALUATION OF SYSTEM RELEVANCY AND PERFORMANCE

ALSO INCLUDED SHOULD BE:

- ACQUISITION AND PROCESSING LOCAL AND STATE LEVEL DOCUMENTS IN PARTICULAR
- QUERY NEOGTIATION AND FORMULATION OF SEARCH STRATEGIES
- CURRENT AWARENESS OF NEW INFORMATION RESOURCES
- AVAILABILITY OF A VARIETY OF INFORMATION PRODUCTS, FROM EDUCATION AND RELATED AREAS, TO MEET VARYING USER NEEDS
- PACKAGING AND REFORMULATION OF INFORMATION IN AREAS OF HIGH REQUEST REDUNDANCY
- ANALYSIS OF OUTPUT WHERE NEEDED
- IDENTIFICATION OF VOIDS IN THE STATE INFORMATION FABRIC TO POINT OUT AREAS OF NEED AND DEVELOPMENT POTENTIAL.
- PUBLICIZING THE SYSTEM'S SERVICES AND ACTIVITIES TO POTENTIAL USERS

k. EACH CENTER AT THE REGIONAL LEVEL SHOULD SPECIALIZE IN AREAS OF PARTICULAR LOCAL CONCERN FOR THE BENEFIT OF THE ENTIRE SYSTEM.

l. MANAGEMENT INFORMATION, INFORMATION DISSEMINATION, AND THE PRODUCTION AND UTILIZATION OF AUDIOVISUAL MATERIALS ARE COMPLEMENTARY AND RELATED AREAS WHICH, WHILE NOT BEING THE DIRECT CONCERN OF THE OPERATION.

2. HUMAN, INSTITUTIONAL, AND PRINT AND OTHER MEDIA RESOURCES SHALL BE THE BASIC CONTENT OF THE SYSTEM.

3. THE MAJOR OPERATIONAL COMPONENTS OF THE SYSTEM SHOULD BE:

   a. CENTRAL COORDINATING OFFICE

   b. DEPARTMENTAL REFERENCE STATION

   c. REGIONAL CENTERS (Approximately 7)

   (See the text of the report for associated functions and suggested locations)

4. THE WAYNE COUNTY ASSIST CENTER SHOULD BE CONSIDERED THE PROTOTYPE FOR THE DEVELOPMENT OF OTHER REGIONAL CENTERS.

5. THE MICHIGAN EDUCATIONAL INFORMATION SYSTEM SHOULD BE CLOSELY COORDINATED WITH LOCAL AND NATIONAL INFORMATION SERVICES TO ELIMINATE, AS

FAR AS POSSIBLE, UNNECESSARY DUPLICATION AND TO PROMOTE A MORE EFFECTIVE LOCAL TO NATIONAL INFORMATION SERVICES HIERARCHY.

Implementation priorities and next steps are recommended. Recommendations are also made for the allied areas of management information (data) handling, information dissemination activities, and audiovisual services to the Department of Education

Michigan Educational Information System

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INTRODUCTION

The Michigan Educational Information System Project reported herein is one which has truly grown from the felt needs of the State. There were two major directions of impetus for its creation. One direction was from the local school district level as articulated by several intermediate school districts, notably the Wayne County Intermediate School District and its ASSIST Center. The other direction was from within the State of Education Department itself, with the initial focus being on the information requirements of the Bureau of Educational Services. A catalytic agent in promoting the investigation of a system to satisfy this matrix of information needs was the Michigan-Ohio Regional Educational Laboratory (MOREL).

The initial meeting to explore the necessity and feasibility of a state-wide educational information system was held on November 12, 1968 at the offices of the Curriculum Division of the State Department of Education. Representatives of the Department, the Wayne County Intermediate School District and ASSIST Center, the State-wide Dissemination Project (STADIS), and MOREL were present. After a general discussion and further delineation of the problems related to the creation of a state-wide educational information system, a sub-committee was appointed to draw up a conceptual outline for the potential system. This sub-committee, consisting of Mr. Richard Anderle of the State Department's Title III staff, Dr. Sanford Glovinsky of the ASSIST Center, Dr. Leonard Demak of Project STADIS, and Mr. Charles Kromer of MOREL, reported at a second meeting held at MOREL headquarters on November 27, 1968. (See Appendix M for a copy of the sub-committee's recommendations.) In addition to representatives of the groups attending the initial meeting, Dr. George Grimes, a specialist in information services from the Detroit Public Schools, who had been involved previously in the MOREL information program, attended the second meeting.

Dr. Ralph Kellogg of the State Department's Curriculum Division and Dr. William Miller of the Wayne County Intermediate School District were central to the Project's formulation during its initial stages.

The third major meeting concerning the creation of an information system took place at the offices of the Bureau of Educational Services in Lansing on March 11, 1969. Attending were representatives of the Wayne County Intermediate School District and ASSIST Center, Project STADIS, the Bureau of Educational Services, the Bureau of Library Services, and the Department's Executive Office. In response to a request by Dr. Kellogg, Dr. Grimes made a presentation at this time dealing with the nature of the process of information transfer in education and suggested a set of potential tasks related to the creation of a Michigan Educational Information System (see Appendix M). Subsequent to this meeting, a request for Dr. Grimes' services to carry out the Project was made to the Detroit Public Schools by Dr. Ferris N. Crawford, Associate Superintendent, Bureau of Educational Services, Michigan Department of Education. Due to the level of mid-semester responsibility and the limited availability of replacement personnel in Detroit at that time, it was not possible to actually initate the Project until the Summer of 1969, rather than in the Spring as had been originally proposed. (See Appendix M for relevant correspondence.) The Project investigator, Dr. Grimes, therefore served as a consultant to the State Department under Elementary and Secondary Education Act, Title III funding for all but one week of of the Summer of 1969. During this time he devoted his energies to the investi-

investigation and creation of the suggested organization and operation of an Educational Information System for the State of Michigan. The balance of this document reports the structure, procedures, activities, findings, and conclusions of that study.

OVERVIEW OF THE PROJECT

General Purposes

Perhaps the most succinct statement of the purposes and intent of the Michigan Educational Information System Project is contained in the formal contract for the investigator's services. The contract states, in part, that:

> THE CONSULTANT SHALL:
>
> Provide consultant services in the conduct of a master plan study for an information system. Such study will describe the purposes, functions, organization, the necessary personnel, and physical requirements of an information system within the Department. The proposed system is to link with other parts of a statewide information system which may include intermediate and/or local school districts and colleges and universities. (The entire text of the contract can be found in Appendix M.)

The investigator (consultant) understood it to be his charge to investigate and explicate the assumptions, rationale, structure, personnel and physical requirements for a state-wide educational information system. It was assumed that this system was to be arrayed at two service levels: (1) inhouse to the Department and (2) diversified to provide direct service to local school districts and educators. Due to time limitations and the stated priorities of the study, emphasis was to be put on detailing the Department components within the context of the entire state-wide system while still providing definite direction for the diversified aspects of the system.

Procedures

The overall procedure for the study stems from the logic of the following paradigm of the nature and operations of information networks as suggested by Jordan Baruch (2). A brief discussion of this model is therefore in order prior to detailing the specific steps taken in the execution of the Project itself.

Information networks are interconnected and interrelated systems of information producers, storage and retrieval facilities, and users. Such networks are concerned with the expeditious distribution of documents and data to those who use them (115, p. 102).

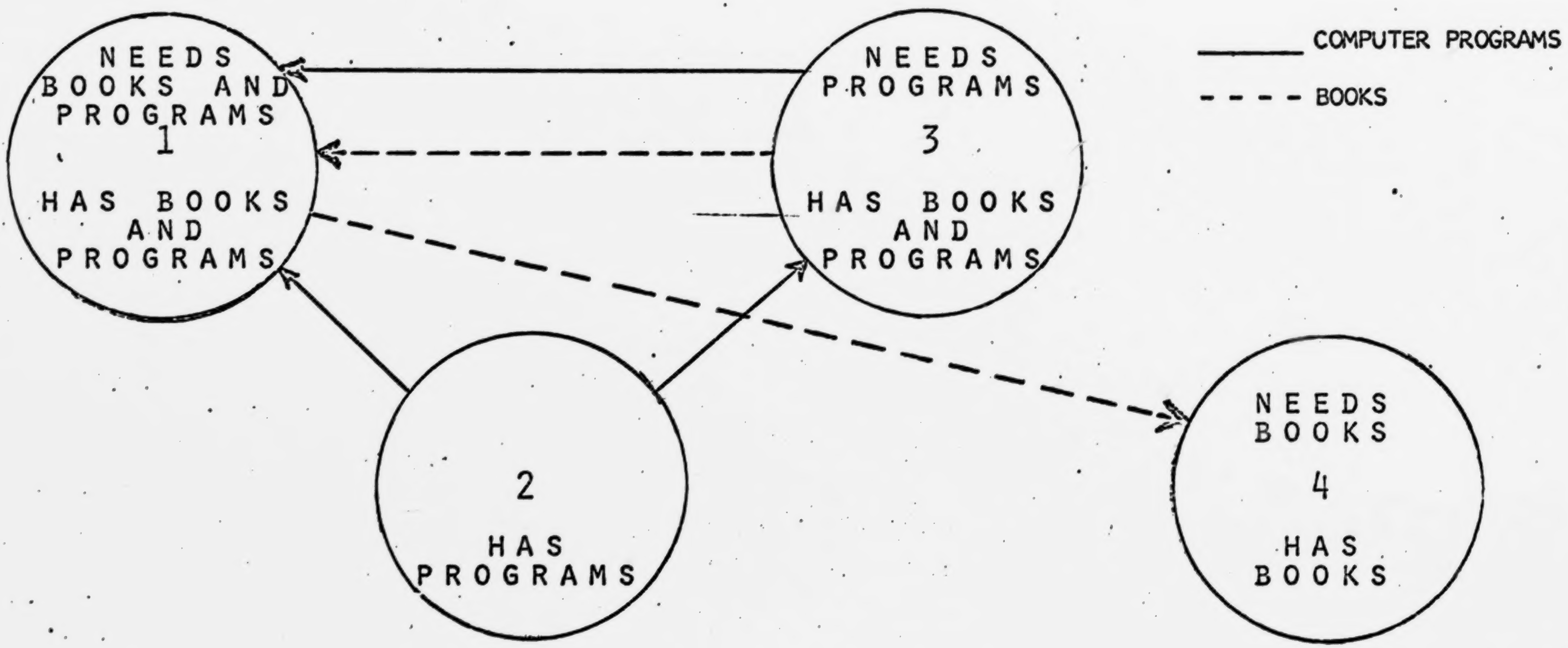
Jordan Baruch of EDUCOM sees three types of communication networks: the need-resources or natural network, the physical network, and the organizational network.

The natural network depicts the distribution of needs and resources among a set of nodes. It illustrates a set of interconnections that could produce the information transfer desired. For example, if four universities chose to lend each other computer programs (solid lines) and books (dashed lines) the natural network might look as depicted in Figure 1.

Center 1 needs books that Centers 3 and 4 have and programs available at Centers 2 and 3. It has, as a resource, books needed by Center 4 and programs needed by Center 3. Such a network is simply a pictorial expression of various desires and resources. It does not express any connections, paths, or the actual flow of such resources. The arrows between the nodes are merely visual representations of the desired flow direction.

FIGURE 1

THE STRUCTURE OF A NATURAL COMMUNICATION NETWORK (BARUCH)


NEEDS BOOKS AND PROGRAMS
1
HAS BOOKS AND PROGRAMS
NEEDS PROGRAMS
3
HAS BOOKS AND PROGRAMS
2
HAS PROGRAMS
NEEDS BOOKS
4
HAS BOOKS
COMPUTER PROGRAMS
BOOKS

NATURAL NETWORK — DEPICTS THE DISTRIBUTION OF NEEDS AND RESOURCES AMONG A SET OF NODES

PHYSICAL NETWORK — A STRUCTURE OR ASSEMBLAGE OF PARTS CAPABLE OF CONVEYING SOME SUBSET OF THE RESOURCES OF THE NATURAL NETWORK (WIRES, TRUCKS)

ORGANIZATIONAL NETWORK — CONCERNED WITH THE FLOW OF META-INFORMATION (BILLING, ORDERING, INSTRUCTIONS, PERFORMANCE DATA)

The physical network is a structure of combination of parts capable of conveying a subset of the resources connecting Centers 1, 2, and 3 in Figure 1. For the exchange of programs, a truck making the trip to transfer books would be part of the physical network. The actual configuration of any network is dictated largely by history, cost, time of response required, material or medium to be carried, and other similar design considerations.

The organizational network is basically concerned with the flow of network meta-information (billing, cost accounting, ordering, instructions, performance data, and data concerning the shape of the network itself). Such a network might have a fifth node added to Figure 1, (if a separate entity existed to manage the physical network) or it might have lines running from Centers 1, 2, and 3 to Center 4, if it was the system administrative agent.

Following the structure suggested by Baruch, the Michigan Information System Project was designed to (1) investigate the nature of the natural (needs/resources) network, (2) determine the alternatives available for the physical and organizational networks, (3) ascertain the "best fit" between the natural and the physical/organizational network alternatives, (4) invent new solutions if necessary, and (5) specify the nature of the system along with recommendations for implementation. An ongoing review procedure was incorporated throughout this process. The major steps in this review procedure consisted of (1) constant interaction with Department staff members and others, particularly the head of the Curriculum Division and the ESEA Title III Staff, (2) a formal presentation of the tentative directions for the system at an open Department meeting with feedback from staff and knowledgeable and varied reaction panel (see Appendix M for the meeting agenda), (3) submission of a final draft of the report for written criticism, and (4) final submission of the report for consideration and action. A host of supporting and implementing materials are also included in the appendixes to this document or are cited in the accompanying bibliography.

Determination of the Needs/Resources Context of the System

In more detail the procedures of the study relating to determination of the natural needs/resources network included:

Structured Interviews

Approximately 40 generally structured interviews were undertaking with Departmental staff members, local and intermediate school district personnel, and representatives of professional organization. (A list of those interviewed and a copy of the complete interview schedule can be found in Appendix A.) A broad range of positions, responsibilities, and points of view were consciously solicited. In essence, two basic questions were asked: (1) What are your particular information needs? and (2) Where do you presently obtain needed information? About one-half of the interviews made were tape recorded for the basic question part of the session. These tape recordings were then reviewed and their major repetitive points noted, thus producing a rather rudimentary content analysis.

Information System Survey

The content analysis of the interviews was used to construct an "Information System Survey" which was distributed to all members of the Department listed in the current Departmen telephone directory. The survey form with general results indicated are shown in Table 1. (The detailed results of the survey can be found in Appendix B.)

TABLE 1

MICHIGAN STATE DEPARTMENT OF EDUCATION

Information System Survey

The data resulting from completion of this survey will be used to help shape a proposed Michigan State Department of Education Information System. Your cooperation in the completion and return of this checklist would therefore be appreciated. Any additional written and/or personal comments are also solicited.

Please return the completed survey to Dr. George Grimes, Curriculum Division, by Monday, August 4.

Thank you.

A. PERSONAL INFORMATION

1. Name (optional) 106 of 293 forms returned (37%) by the cutoff date (8/22/69)
   One reminder sent (8/13/69)
2. Subject and/or administrative area (e.g. Special Education, Title III programs) (See sub-list #1, Appendix B)
3. Level of Responsibility:

   4 Associate or Assistant Superintendent
   6 Director
   2 Assistant or Associate Director
   8 Chief

   23 Supervisor
   8 Coordinator
   53 Consultant
   5 Other
   (See Appendix B for details)

4. Location of responsibility (express in % if appropriate):

   88% In Lansing (Median of 90 responses; see Appendix B for details)
   22% Other (office) location (Median of 2 responses; see Appendix B)
   40% In the field (Median of 45 responses; see Appendix B)

5. Length of tenure with the Department (in years) 8 (Average)
6. Full time teaching/administrative experience outside of the Department (in years)

   7 K-6 (average for 19 respondents)
   12 7-12 (average for 28 respondents)
   5½ Higher Ed. (average of 15 respondents)
   20 None (#of respondents choosing this catagory)

B. TYPES OF INFORMATION USED AND/OR DESIRED IN YOUR WORK

NOTE: For purposes of this survey, information is defined as knowledge in all its forms and formats.

1. Please indicate the present use, availability, and estimate of effectiveness of the following sources of educational information in your situation. Also indicate those information sources which are not presently available but which you feel would have definite value if they were.

For this section only, use a five point (1 high to 5 low) scale in your weighing.

(Values expressed in average weights. The number using each type of resource is indicated in parentheses)		Use	Availability	Present Effectiveness	Value if Available
(86)	a. Books	2 4/8	3	3 1/8	2 3/8
(90)	b. Periodicals	2 1/8	2 5/8	2 3/8	2 1/8
(83)	c. Newsletters	2 6/8	2 3/8	3	2 4/8
(83)	d. Curriculum Guides and Manuals	3 4/8	2 6/8	3 3/8	2 6/8
(61)	e. Services (Croft's, SRA, etc.)	3 1/8	3 7/8	3 5/8	2 7/8
(79)	f. Conference Proceedings, Yearbooks, etc.	3	3 1/8	3 1/8	2 6/8
(78)	g. Handbooks, Directories, etc.	2 5/8	2 7/8	3 7/8	2 5/8
(74)	h. Dissertations	3 6/8	3	3 5/8	3
(85)	i. Human Resources (Consultants)	2 5/8	2 6/8	2 4/8	2
(72)	j. Project Information	2 4/8	2 7/8	2 6/8	2 1/8
	k. Other (See list, Appendix B)				

2. From what sources do you presently obtain the above resources? Please list the category letters from the above question in front of the appropriate source.

(Number of respondents indicating use for one or more resources)

17	State Library (Reference Department)
35	State Library (Cass Branch)
16	Research Coordinating Unit (Voc. Ed.)
24	Bureau of Research
25	Departmental Reference Collection
20	Local Public Library
73	University Library
63	Personal Reference Collection
68	Colleagues
	Other (See list, Appendix B)
	Other
	Other

(See Appendix B for detail as to types of information resources obtained from each source.)

3. Do you feel that you need to be aware of the sources from which information originates as long as it is available in relation to your needs? 75 Yes 14 No

4. Would you like to be kept currently aware of new publications, reports, projects, and other activities in areas which you specify? 101 Yes 2 No

If so, would you prefer receiving this information as:

16 a. A listing of publications and activities
48 b. An abstract of the publications or activities
19 c. The publication itself
49 d. An initial listing of the publications or activities with provision for more information if desired

C. WHAT FORM SHOULD INFORMATION BE AVAILABLE IN?

1. If an information service were available to serve your needs, would you prefer to:

36 a. Have a resource collection directly available?
33 b. Have an information specialist do the necessary searching and material procurement for you?
48 c. Have an information specialist do a preliminary search with the option of obtaining more information or the actual items as you wish?
14 d. Have a staff member in your department do the searching?

2. If you required a synthesis of information in an area, would you prefer to:

31 a. Do such a synthesis yourself?
23 b. Have a member of your staff do the synthesis?
58 c. Have an information specialist do the synthesis?

3. Do you perceive physical proximity to information sources as a necessity for effective utilization? (assuming that adequate mechanisms are available to deliver these needed items with one day's notice) 53 Yes 41 No

D. TYPES OF INFORMATION

1. What particular subject and/or curriculum process areas are of greatest concern to you? (See sub-list #2, Appendix B)

2. Do you feel that information from education related fields (the liberal arts, science, technology, business, industry, government) would be relevant to your activities? 93 Yes 2 No

3. Would you see a centralized collection of all Department publications as being of value? 66 Yes 24 No

4. What types of information would you like to have from local school districts? (See sub-list #3, Appendix B)

5. What types of information do local school districts request of you?

(See sub-list #4, Appendix B)

E. ALLIED AREAS

1. What are the main obstacles which you see to the implementation of a departmental information system?

(See sub-list #5, Appendix B)

2. Do you feel that there is a need for an audiovisual material production capacity within the Department? 78 Yes 14 No

If yes, would you prefer (please check):

11 A do-it-yourself facility?
67 A facility staffed to do the work for you?
(7 indicated a combination would be preferred)

3. Do you feel that there is a need for easier access to audiovisual equipment? 70 Yes 22 No; To audiovisual materials? 66 Yes 15 No

4. To what extent do you feel that you are aware of the information resources presently available within the Department? (please check)

Full knowledge 9 Somewhat aware 74 Unaware 13

F. ADDITIONAL COMMENTS AND/OR QUESTIONS WHICH SHOULD BE ASKED

Small Group Feedback

A third formal type of input to the nature of the needs/resources network were the reaction sheets turned in by structured small groups which met immediately following a presentation by Mr. Thomas Clemens, Chief, Research Utilization Branch, U. S. Office of Education, entitled "Information Transfer and Research Utilization in Education," which was given on July 14, 1969. (An edited transcript of Mr. Clemens' speech can be found in Appendix D.) The basic question posed to the group was: What are your information requirements? The needs articulated during the group discussions were recorded and submitted to the Project investigator. Many of the participants in these small group sessions had not been previously interviewed.

Mr. Clemens presentation also provided a somewhat common context regarding the nature of educational information transfer for the Department staff.

Identification of Existing Alernatives for the Structure of the System

Regarding awareness of the alternatives available for the physical and organizational networks the following steps were taken:

Updating Literature Search

Mr. James Doyle, now Head of Reference for the University of Detroit Library and formally Information Specialist with MOREL, was engaged as part of the Project staff on a part-time basis to conduct a search of the literature of the field of information services with particular emphasis on educational applications. This activity was basically an updating of the Project investigator's doctoral dissertation which was approximately one and a half years out of date in terms of a formal look at the literature of the area (115).

The end product of this literature search is the bibliography which is supportive to this report. The intent of the bibliography was two-fold. First, it produced leads to ideas and research relevant to techniques and methods which might be utilized in the Michigan System. Many of these ideas are footnoted on this document. Secondly, it stands as a source of specific data and testimony toward implementation of the Michigan System or particular parts of it.

Perhaps two basic points should be made concerning the bibliography itself. The view of the literature search taken was quite broad in scope across the various area of knowledge, with a particularly intensive view being taken of information utilization in the fields of science and technology. Secondly, the procedure utilized in this search was the "bibliographic chain" approach as discussed by Grimes and Doyle in Information Resources: A Searcher's Manual (212). Although there was some activity found at the state level relating to educational information systems (107, 114, 118, 120, 126, 127, 128, 131, 132), none of these programs approached the total integration of the suggested Michigan System. The only project currently under way which purports to take a comprehensive look at the total local to national information hierachy is one recently begun by the Auerback Corporation for the U. S. Office of Education (Appendix D, p.). The results of this study will not be available for at least a year.

Solicitation of Expert Opinion

In addition to the structured interviews with Department members and others aimed at ascertaining their needs and available resources, another series of interviews took place to determine what expert opinion saw as the most viable alternatives for a Michigan Educational Informational System. The view and responsibility of these experts ranged from local to national, within and without the State Department, and from direct services capacities to theory building activities. (A list of the persons whose expert opinions were sought are included in Appendix A.) A secondary purpose of these interviews was to use these individuals as sounding boards for ideas which were emerging as potentially valuable for the Project.

Without esception this group indicated that they were most interested in the Project and would be willing to help in any way that they could.

Site Visitations

Five particular site visitations were undertaken to add practical observation of operating information services to the input for the Project. While involved in an afternoon presentation in Philadelphia, Pennsylvania, the investigator visited the nearby RISE Center (Research and Information Services for Education) (147, 149, 150). An opportunity also arose, as part of a project advisory committee, to visit the Educational Resource Information Center (ERIC) Clearinghouse for Teacher Education in Washington, D. C. A full morning was spent at the Wayne County Intermediate School District ASSIST Center in a meeting with that center's assistant directors for information services and research. As the investigator had an ongoing familiarity with the ASSIST operation the main topic of concern during the meeting was a user study which ASSIST had recently completed (152). Time was also spent on several occasions with the reference staff of the State Library and a special visit was paid to the Regional Special Educational Materials Center at Michigan State University.

The project investigator had previously visited the EPIC Center, Calhoun Intermediate School District, Marshall, Michigan; the Association Referral Information Services (ARIS) of the Ohio Educators Association; and was thoroughly familiar with the Wayne State University Education Library, the Detroit Public Schools Curriculum Laboratory and Professional Library, and the MOREL Information Center.

No particular attempt will be made to analyze the results of these various investigations in this report, as their influences should be apparent in differing degrees throughout the remainder of this report and as this report represents an integration of thoughts and ideas from many quarters. Some comments stemming from the results of the various information gathering techniques discussed above, however, will be made in relation to the basic assumptions of the study.

SPECIFICATIONS OF THE SYSTEM'S RATIONALE AND STRUCTURE

The Process of Information Transfer*

The activity basic to the operation of any information system is that of information transfer. In view of this, any meaningful rationale for an information system must start with consideration of this process.

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*A general discussion of the process of information transfer is presented at this point, in the main body of the report, to provide a common basic for understanding the theory underlying the assumptions and recommendations of the study. Those familiar with information transfer theory may wish to bypass this and the next section (The Content of an Educational Information System) and proceed directly to the basic assumptions section.

Those wishing additional context and background may want to review Appendix C (Information Services--A Survey of the History and Present Status of the Field) and Appendix D (Information Transfer and Research Utilization in Education). These two appendixes, plus the two sections given here in the main body, constitute a short course in the history and nature of information services for those who desire it.

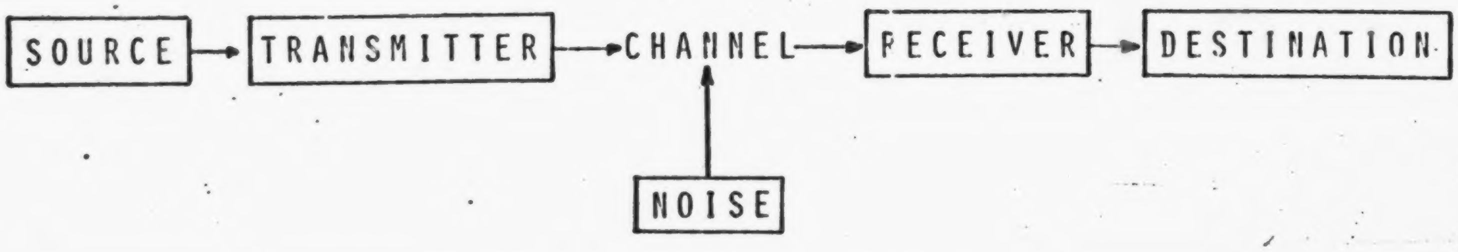
In the introduction to their theme paper for the 1968 Convention of the American Society for Information Sciences, Murdock and Liston state that:

> Inherent in at least one set of definitions of the words "knowledge" and "information" is the concept that an item of knowledge becomes an item of information when it is "set in motion" -- when it enters the active process of being communicated or transferred from one or more persons, groups, or organizations (sender) to one or more other persons, groups, or organizations (receiver). Many people will argue that knowledge as defined here has no intrinsic value -- that only when it is successfully transferred is its value to be realized. Others go further, arguing that the value of information cannot be realized until it is actively applied in decision making. Either of these viewpoints must necessarily concede that *value* is dependent upon *transfer*. Thus, *information transfer* is an important and appropriate item...(61, p. 198).

Murdock and Liston state that their general model of information transfer (see Figure 5) is based on the classic sender-channel-receiver concept of communication theory, but uses a variety of alternate channels. In order to fully consider the Murdock-Liston model of information transfer, which is basic to the rationale of this study, let us just take a brief look, therefore, at the dynamics of the whole communications process.

In his discussion of the communication process, Osgood starts to build his model to human communication by referring to a more generalized mathematical model suggested by Shannon which might be applied to electrical, biological, psychological, and social systems as well as to language communication (75).*

Figure 2
Shannon's Model



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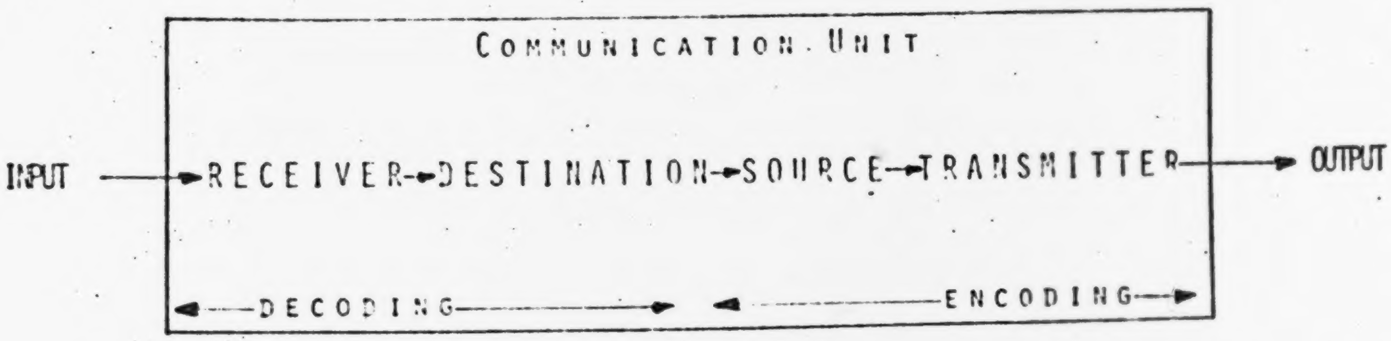
*Other valuable considerations of the nature of the communications process have been made by Berlo, Lasswell, Schramm, Ross, and Westley-MacLean among others. The Osgood model is used here because it emphasizes the role of the humans as self-contained communications units and the general nature of communication (or information transfer) channels.

According to Osgood we have communication when, "a source influences another system, a destination, by manipulation of the alternative signals which can be carried in the channel connection them" (63, p. 1).

The activity of the transmitter in the Shannon model is usually referred to as encoding and that of the receiver as decoding. Anything which produces variability at the destination which is unpredictable from variability introduction at the source is called noise.

As humans function more or less simultaneously as a source and a destination and also as a transmitter and receiver of messages, this model is not applicable to human communication. Osgood rearranges Shannon's components into a communication unit which is essentially a transceiver.

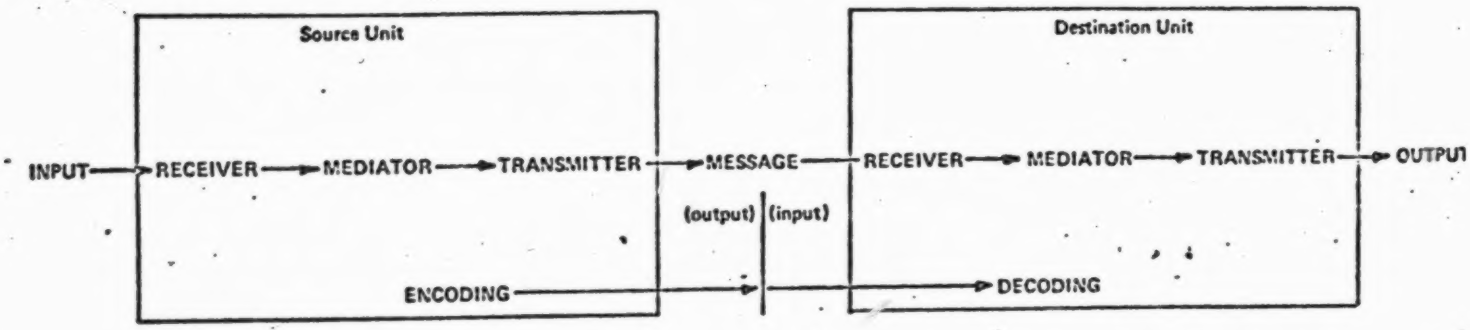
Figure 3
Osgood's Communication Unit



In Psychological language, input is the equivalent of "stimulus," a receiver becomes "reception" and "perception," destination and source become "cognition," transmitter becomes "motor organization and sequencing" and input becomes "response." Osgood also makes the point that engineering models do not take into account the signal's meaning; a critical observation when related to information systems.

As human communication is a social affair, any adequate model of it must therefore include at least two communicating units, a source unit (speaker) and a destination unit (hearer). A message connects the two units. A message is defined as "that part of the total output (responses) of a source unit which simultaneously may be a part of the total input (stimuli) to a destination unit" (63, p. 2). This message may be either immediate (e.g. face-to-face conversation) or mediate (e.g. written, audio, visual). Information systems, as we shall see, have been mainly oriented toward mediated information, and a particular media (print) at that. Osgood's complete human communication model, therefore, looks like this:

Figure 4
Osgood's Model


Source Unit
Destination Unit
INPUT
RECEIVER
MEDIATOR
TRANSMITTER
MESSAGE
(output)
(input)
RECEIVER
MEDIATOR
TRANSMITTER
OUTPUT
ENCODING
DECODING

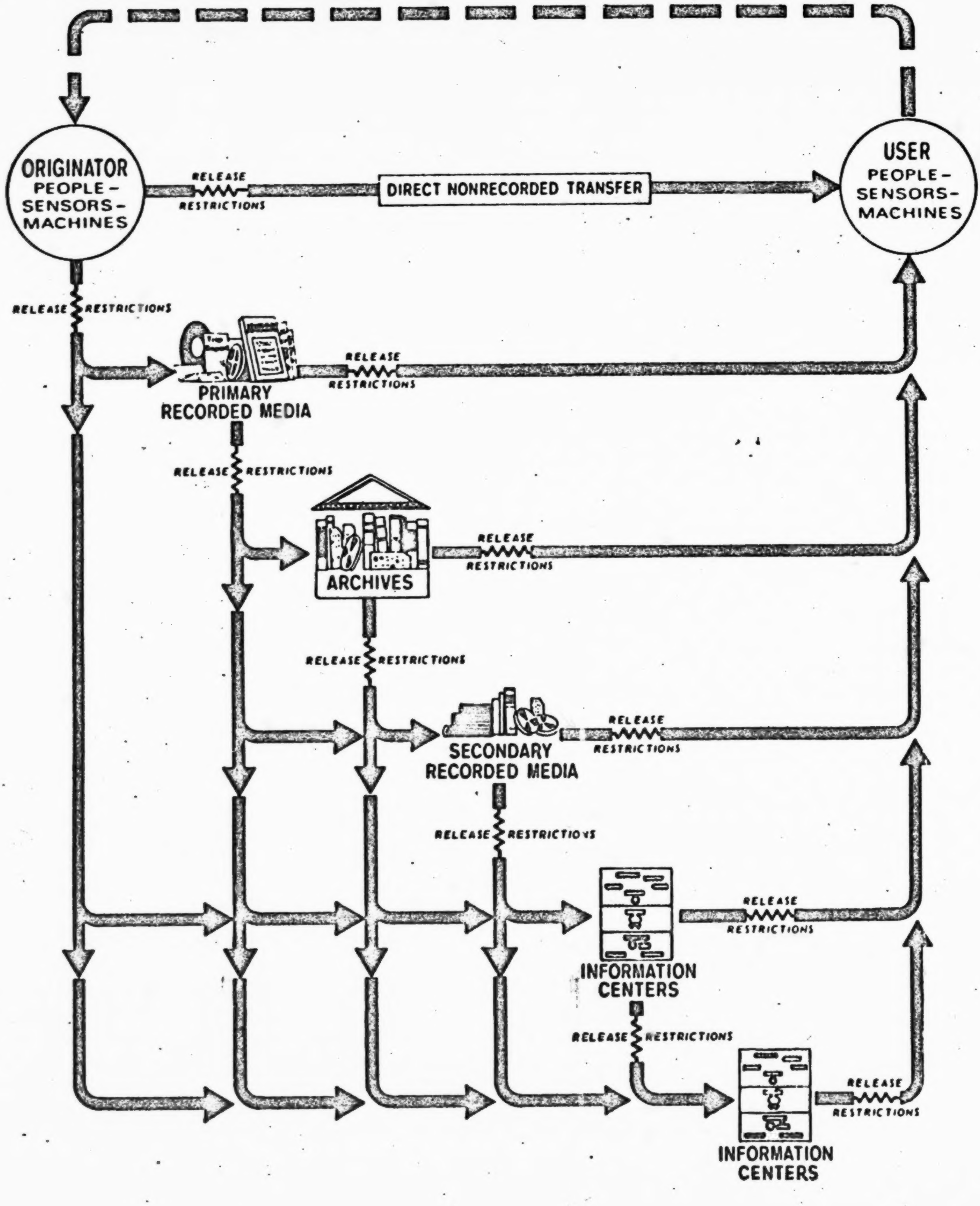
As can be seen in Figure 5, the Murdock-Liston model is basically an elaboration of the Shannon and Osgood models which concentrates on the nature of the various communication channels which can connect the source (originator) and the receiver (user).

Several terms used in the Murdock-Liston model require further investigation and shed additional light on the nature of information transfer.

1. The Direct Channel is face-to-face discussion in which communication is:
    a. Very direct.
    b. Very dynamic, permitting the utilization of words, phrases, sentences, etc. (language); gesticulations; inflections of the voice; interruptability, allowing the receiver to interrupt the sender requesting clarification of or elaboration on the message being spoken; and feedback, allowing the receiver to become the sender with reverse flow of information transfer.
    c. Very rapid with virtually no delay time.

FIGURE 5

MURDOCK-LISTON MODEL OF INFORMATION TRANSFER


ORIGINATOR
PEOPLE-
SENSORS-
MACHINES
RELEASE
RESTRICTIONS
DIRECT NONRECORDED TRANSFER
USER
PEOPLE-
SENSORS-
MACHINES
RELEASE RESTRICTIONS
RELEASE
RESTRICTIONS
PRIMARY
RECORDED MEDIA
RELEASE RESTRICTIONS
RELEASE
RESTRICTIONS
ARCHIVES
RELEASE RESTRICTIONS
RELEASE
RESTRICTIONS
SECONDARY
RECORDED MEDIA
RELEASE RESTRICTIONS
RELEASE
RESTRICTIONS
INFORMATION
CENTERS
RELEASE RESTRICTIONS
RELEASE
RESTRICTIONS
INFORMATION
CENTERS

The primary disadvantages of this channel are related to:

a. Faulty memory.

b. Little chance for study of what has transferred.

c. Frequent acceptability of vague generalizations which would not be permitted in a recorded message.

Progressing from the point of face-to-face discussion along with communication continuum toward situations involving less directions, less dynamic transfer, and more time delay, one can visualize situations such as phone conversations, television and radio broadcasting. Murdock and Liston see all of these types of transfer as signified by the direct channel from the originator to user depicted in their model because of their immediacy.

2. The Primary Recorded Media Channel is created when the originator comes to feel that what he has to say should be recorded as a part of the body of the literature of his discipline. Examples of primary recorded media are: letters, newspapers, conference notes, technical reports, handbooks, monographs, text, patents, and recorded tapes.

3. The Archival Channel was developed to store information for subsequent delayed usage when the user becomes aware of the need for it. Document depots, libraries, special libraries, and corporate files are all forms, at least in part, of archival storage.

4. The Secondary Recorded Media Channel feeds from both the primary recorded media channel and the archival channel. It becomes archival itself when collected into libraries and other holdings. The purpose of secondary recorded media is to assist people to search, more easily, the ever increasing volume of current and stored informatiional items. Example of secondary recorded media are: abstracting journals, accessional bulletins, indexes, and bibliographies.

5. The Information Center Channels represent an attempt to provide a service to essentially a known group of users on demand. The information analysis center, in particular, "attempts to utilize all information transfer channels to provide technical answers to technical questions posed by users" (61, p. 200). It should be noted that one information center can refer to another in the model.
6. Release Restrictions impede the free transfer of information from originator to user. These restrictions could be compared to the resistances or impedances in electrical circuits and are analogous to noise in the Shannon model. The total resistance to flow probably varies according to whether the resistance in the channel is applied in series or in parallel or in a combination of both.

Release restrictions exist even at the face-to-face (direct channel) level of communication in such forms as language difficulties, personal reluctances to devulge facts and personal incapabilities of expression. Restrictions become more notable as contact between the sender and receiver grow progressively less direct.

7. The Symbol for Information Centers in the Murdock-Liston model was first described by G. S. Simpson at the 1960 annual meeting of the American Documentation Institute. The three parallel segments of the symbol represent the primary functions of the analysis center as described by Simpson. The top segment represents the acquisition function; the middle segment, the storage and retrieval function; and the bottom segment, the primary function of analysis.

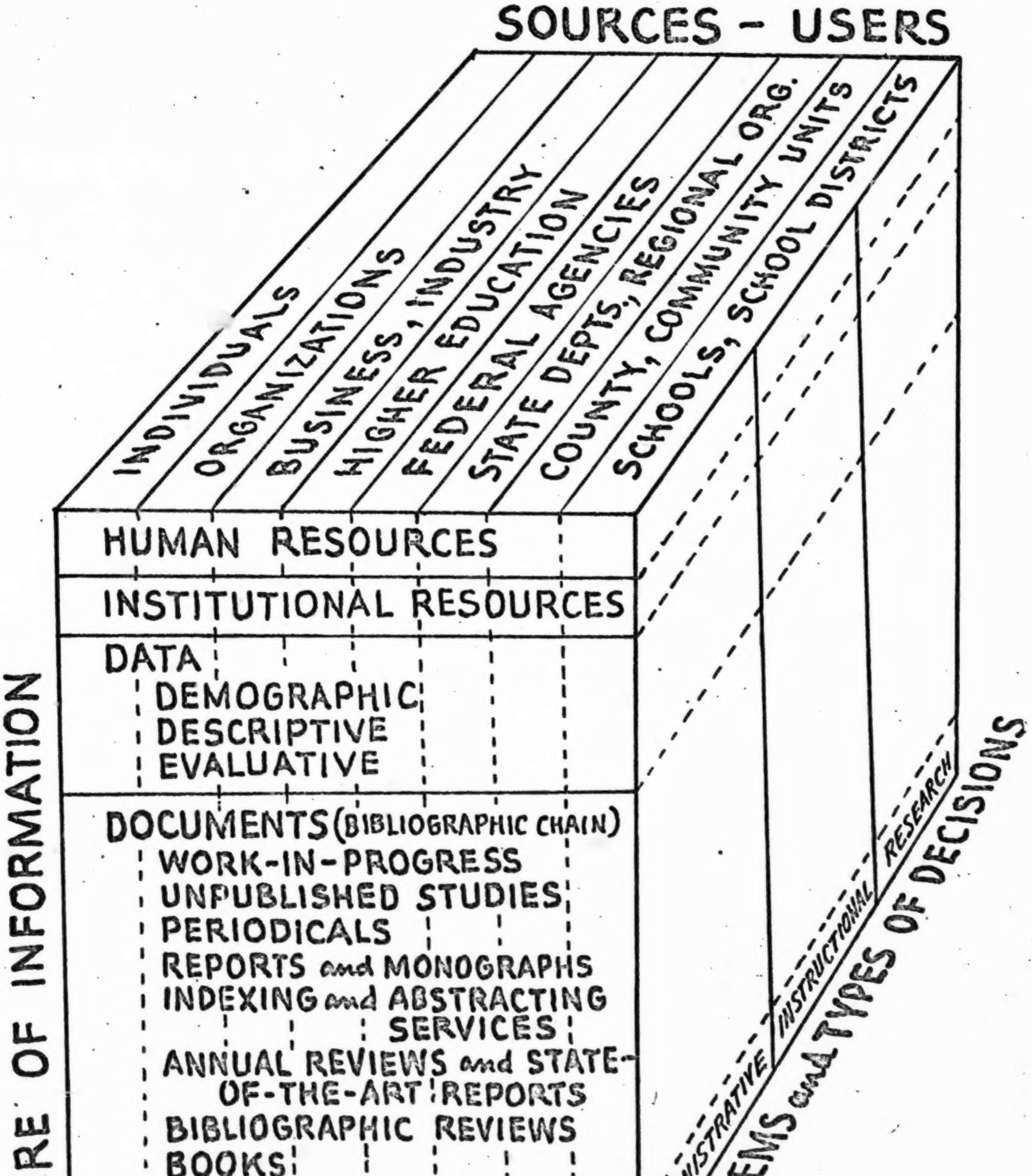
The Content of an Educational Information System

The model shown in Figure 6 was originally created by Dr. Frederick Goodman, of the University of Michigan, for the Central Midwestern Regional Educational Laboratory (CEMREL). It shows the parameters of information from its inception through its nature and formats to the types of decisions it is used for, and finally its flow back to the users who are in a general sense the same types of persons and agencies which created the information in the first place. The category of simulation was added to the original model for use in the Michigan-Ohio Regional Educational Laboratory Information System and the bibliographic chain document progression was added for the purposes of this study. While the specific informational content of this model is the field of education, the same set of dimensions could be used to describe the information content of other areas of endeavor with no alteration in the indicated general parameters, relationships, or flor of the model.

Looking at the model by dimensions, the sources-users plane indicates that the model which is depicted here as a three dimensional representation, in fact operates with a generally circular flow. The same kinds of entities that create information (individuals, agencies) also use it. In reality this flow is not usually truly circular because rarely would the same person or agency use the information they created by gathering it from the system, unless it had been radically transformed or augmented in the transmission process. The source-users dimension also serves to point out the various sources from which information springs and the unity of these sources with the consumption of information. This representation is also a confirmation

FIGURE 6

PARAMETERS OF INFORMATION


SOURCES - USERS
INDIVIDUALS
ORGANIZATIONS
BUSINESS, INDUSTRY
HIGHER EDUCATION
FEDERAL AGENCIES
STATE DEPTS, REGIONAL ORG.
COUNTY, COMMUNITY UNITS
SCHOOLS, SCHOOL DISTRICTS
NATURE OF INFORMATION
HUMAN RESOURCES
INSTITUTIONAL RESOURCES
DATA
DEMOGRAPHIC
DESCRIPTIVE
EVALUATIVE
DOCUMENTS (BIBLIOGRAPHIC CHAIN)
WORK-IN-PROGRESS
UNPUBLISHED STUDIES
PERIODICALS
REPORTS and MONOGRAPHS
INDEXING and ABSTRACTING SERVICES
ANNUAL REVIEWS and STATE-OF-THE-ART REPORTS
BIBLIOGRAPHIC REVIEWS
BOOKS
ENCYCLOPEDIC SUMMARIES
SIMULATION
ADMINISTRATIVE
INSTRUCTIONAL
RESEARCH
PROBLEMS and TYPES OF DECISIONS

of the information transfer idea in that information is transferred or traded among a rather consistent set of sources and users through various itermediary channels.

Human resources can be found in the form of persons who have some degree of knowledge, skill or experience to share with others in given areas. Consultants (active or potential) and other persons who can bring their skills to bear without necessarily speaking for any particular organizational structure would appear here.

Institutional resources means resources such as projects or agencies. Agencies are organizations which have an administrative structure and staff that are engaged in an ongoing operation with both short and long range goals. Projects, on the other hand, are defined as undertakings of a relatively short and circumspect nature.

Data can be either those which are codified in print, such as demographic census data, or those which exist in raw form on computer tape or similiar storage media. Some types of specialized information centers are repositories of raw data which can be called forth as needed. The Project Talent Data Bank and the International Data Library and Reference Service are examples of this type of repository. Budget and other types of monetary and statistical data are included in this category also. The general term for this kind of information is management information. The proposed Michigan System will not be basically concerned with this type of information (see Assumption #12, p.); therefore, most data used in the Michigan Information System will probably be contained in printed materials or as part of the evaluation procedures for project activities related to education.

Documents are treated in detail in the section discussing the concept of the "bibliographic chain" which follows this general consideration of the Goodman model.

Simulation is actually a means of creating information which did not previously exist by setting up a situation, including certain basic data and information, and then projecting this situation into the future by extrapolating the given data and information through a probable series of events. This extrapolated information indicates the probable results of acting in a certain way upon the circumstances presented.

The Problems and Types of Decisions dimension is shown in three categories: administrative, instructional, and research. The various types of information mentioned above may be used against these problem categories to assist in decision making. A report on a project might contain the necessary information for an administrator to decide whether it should be continued or not. A recent book may have an effect on the nature of instruction in the years to come. The results of a conversation with a consultant may enable a researcher to apply an effective statistical analysis to some evaluative data to reach a research decision. In all of these cases differing types of information were brought to bear on the decision making process. In all of these decisions the resulting action has effect on either persons or agencies, so that the information creation and use cycle has come full cycle from its inception. Furthermore, the effects of these decisions may start another cycle by the need to make appropriate adjustments related to them. The cyclical flow of information in the model, therefore, becomes cybernetic in its effect and operation.

For purposes of constructing a Michigan State Information System, the Goodman representation of information shall be assumed to be an accurate picture of the content and relationships of information in the real world and the Murdock-Liston model as an accurate discription of the process of information transfer.*

Human, Institutional, and Print Resources--The Bibliographic Chain

As the Michigan Educational Information System is to be mainly concerned with the document, talent, and institutional resource asepcts of the Goodman model, a more intensive view of these particular sources of information will be given here. The organizing theme of this look shall be the concept of the bibliographic chain (212, 164).

Like the process of human growth and development, an item of information goes through a process of change from its conception to its ultimate resting place in an encyclopedic summary, or its replacement by an updated concept. It is possible to chart this course of development for a given piece of information as it passes into and through mainkind's body of accumulated knowledge. This pattern of movement is called the "bibliographic chain."

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*A model is defined as a simplified, stylized representation of the real world which abstracts the cause-and-effect relationships essential to dealing with the question being studied. Bross, in a discussion of models (in James H. Campbell and Hall W. Hepler. Dimensions in Communication. Belmont, California: Wadsworth, 1966, p. 9) points out that a model is never true or false and that "the standard for comparing models is utility, i. e., successful prediction. The evaluation of a model is, therefore, dependent on the situation in which it is to be used." The Murdock-Liston model is a generally acknowledge one in the information sciences field. It and the lesser known Goodman model have been specifically tested in the MOREL Regional Information System and the Ohio Education Association's Association Referral Information Service (ARIS). In both cases the models were found to be valid and operationally effective.

The most important aspect of this pattern is its relationship to time. A piece of information is usually conceived as a rather distinct fact or concept, which is only partially related to pre-existing integrated knowledge, and appears as such as in the first steps of the bibliographic chain. As time passes this fact or concept is modified by the generation of related information and gradually begins to merge into the body of accummulated knowledge. Due to the time lag involved in this process, the resulting integrated information is less current than were the originally separate facts or concepts, but due to the general nature of the body of knowledge, its currency becomes less important, and its applicable accuracy more significant.

The bibliographic chain itself is composed of a series of "information formats" which represent the various stages of the time-oriented course that a fact or concept follows. Each of the following stages represent a further integration of separate information items into the general knowledge mass.

Information Residing in Human Resources
Information Being Created by Institutions
Work-In-Progress
Unpublished Studies
Periodicals
Reports and Monographs
Indexing and Abstracting Services
Annual Reviews and State-of-the-Art Reports
Bibliographic Reviews
Books
Encyclopedia Summaries

The nature and specific content of these categories are explored more fully in Appendix F.

There are three distinct and interrelated phases which are represented within the links in the bibliographic chain:

Phase I: Human and Institutional Resources are "packages" of information only in the most general sense. At this stage the information basically resides within the minds of people, either individually (as with consultants) or in groups (as with the staff of a project). These resources include individual and collective thoughts, observations, deductions, investigations, ass-mptions, and unplanned discoveries.

Phase II: Printed Materials with Intellectual Content begins with a human idea which has reached the point where it can be committed to print or another information medium. This act produces in general chronological sequence: work-in-progress reports, unpublished studies, periodical articles, reports and monographs, annual reviews and state-of-the-art reports, books, and eventually encyclopedic summaries of the resulting body of knowledge.

Phase III: Printed Materials Which Have No Intellectual Content of their own but which provide access to those Phase II materials which do include: indexing and abstracting services as well as bibliographic reviews. Annual reviews and state-of-the-art reports may also provide the identification function in addition to some actual content. They are, therefore, included in both Phases II and III. Phase III materials lead to information but do not normally contain information themselves. They are basically location tools.

It should be noted that the relationship of Phases II and III is only generally connected to the time lag inherent in the bibliographic chain. This is because the printed items with no intellectual content of their own often parallel those materials with intellectual content, as the purpose of the former is to provide effective access to the latter. The time lag inherent in the bibliographic chain lies mainly in the movement of ideas through and between Phases I and II.

The schematic diagram in Appendix F graphically illustrates the functions of the bibliographic chain when used to locate desired information. The location tools of Phase III which provide access to Phase II materials (and in some special cases Phase I information as well) are described in detail in Appendix F as indicated earlier.

The Basic Assumptions of the System

Evolving from the foregoing discussion of the nature of the process of information transfer and the content of an educational information system, as well as from the results of the various information gathering activities carried on as part of the Project, the assumptions listed below are seen as basic to the Michigan Educational Information System. After the listing of basic assumptions, a short commentary on the assumptions is provided which draws upon the results of the structured interviews, the Information System Survey, feedback from small groups, the review of the literature, solicitation of expert opinion, and site visitations. A summary of the reactions of Department staff members, as recorded on a nine point agree/disagree scale, is also provided (Table 2).

The assumptions basic to the system are:

1. THE SYSTEM SHOULD BE BUILT ON USER REQUIREMENTS. THE END PRODUCT OF THE SYSTEM SHOULD BE USER SERVICE.
2. THE USER IS THE BEST JUDGE OF THE RELEVANCE OF AN ITEM OF INFORMATION TO HIS NEEDS.
3. A "WARM AND WALKING COMPUTER TERMINAL" SHOULD STAND AT THE INTERSECTION OF USER REQUIREMENTS AND SYSTEM'S RESOURCES (INTERFACE DELEGATE).

4. EASE OF ACCESS, CURRENCY OF INFORMATION, AND RAPIDITY OF SERVICE ARE CRITICAL. OF THESE, ACCESS TO THE HUMAN INTERFACE AGENT AND INFORMATION ARE THE MOST IMPORTANT.

5. THERE SHOULD BE TWO-WAY VERTICAL ARTICULATION WITHIN THE SYSTEM (USER NEEDS TO MATERIALS AND MATERIALS TO USER NEEDS). THIS ARTICULATION SHOULD EXTEND BETWEEN AND THROUGHOUT THE FOUR NATURAL LEVELS OF A TOTAL EDUCATIONAL SYSTEM (NATIONAL, STATE, REGIONAL, AND LOCAL).

6. THE MICHIGAN SYSTEM SHOULD CONCENTRATE ITS EFFORTS AT THE STATE AND REGIONAL LEVELS, WHILE ALWAYS TAKING INTO CONSIDERATION NATIONAL AND LOCAL NEEDS AND RESOURCES. EXISTING RESOURCES SHOULD NOT BE DUPLICATED, BUT, SHOULD BE COORDINATED AND SUPPLEMENTED. THIS COORDINATION SHOULD TAKE PLACE WITHIN THE STATE DEPARTMENT.

7. THE SYSTEM SHOULD SUPPORT AND PROMOTE THE DEVELOPMENT OF LOCAL INFORMATION SYSTEM EFFORTS WHICH ARE CONSISTENT WITH THE PURPOSES AND STRUCTURE OF THE STATE-WIDE SYSTEM.

8. THE SYSTEM SHOULD PROVIDE INTERNAL REFERENCE AND CURRENT AWARENESS SERVICES TO THE HOST AGENCY OR UNIT (STATE DEPARTMENT OF EDUCATION, INTERMEDIATE SCHOOL DISTRICT).

9. THE INFORMATION CONTENT OF THE SYSTEM IS KNOWLEDGE IN ALL FORMS AND FORMATS. EACH FORM OF INFORMATION IS ASSUMED TO HAVE ITS OWN INTEGRITY, E. G. IT SHOULD BE USED WHEN AND WHERE IT CAN DO THE JOB BETTER THAN ANY OTHER FORM OF INFORMATION IN RELATION TO ITS PARTICULAR STRENGTHS AND WEAKNESSES.

10. THE TECHNICAL FUNCTIONS OF THE SYSTEM SHOULD INCLUDE:

    - MATERIALS EVALUATION
    - ACQUISITION
    - TECHNICAL PROCESSING
    - STORAGE FOR RETRIEVAL
    - ACCESS FOR USE
    - EVALUATION OF SYSTEM RELEVANCY AND PERFORMANCE

    ALSO INCLUDED SHOULD BE:

    - ACQUISITION AND PROCESSING OF LOCAL AND STATE LEVEL DOCUMENTS IN PARTICULAR
    - QUERY NEGOTIATION AND FORMULATION OF SEARCH STRATEGIES
    - CURRENT AWARENESS OF NEW INFORMATION RESOURCES
    - AVAILABILITY OF A VARIETY OF INFORMATION PRODUCTS, FROM EDUCATION AND RELATED AREAS, TO MEET VARYING USER NEEDS
    - PACKAGING AND REFORMULATION OF INFORMATION IN AREAS OF HIGH REQUEST REDUNDANCY

- ANALYSIS OF OUTPUT WHERE NEEDED
- IDENTIFICATION OF VOIDS IN THE STATE INFORMATION FABRIC TO POINT OUT AREAS OF NEED AND DEVELOPMENT POTENTIAL
- PUBLICIZING THE SYSTEM'S SERVICES AND ACTIVITIES TO POTENTIAL USERS

11. EACH CENTER AT THE REGIONAL LEVEL SHOULD SPECIALIZE IN AREAS OF PARTICULAR LOCAL CONCERN FOR THE BENEFIT OF THE ENTIRE SYSTEM.

12. MANAGEMENT INFORMATION, INFORMATION DISSEMINATION, AND THE PRODUCTION AND UTILIZATION OF AUDIOVISUAL MATERIALS ARE COMPLEMENTARY AND RELATED AREAS WHICH, WHILE NOT BEING THE DIRECT CONCERN OF THE SYSTEM, SHOULD BE TAKEN INTO ACCOUNT IN THE SYSTEM'S DESIGN AND OPERATION.

At the August 11 regular staff meeting of the Curriculum Division, to which members of the Bureaus of Research and Vocational Education, the Special Education Division, and the State Library were invited, those present were asked to record their agreement or disagreement with the above assumptions on a reaction form. The results of this polling are given in Table 2.

Commentary

There has been a growing concern of late with the needs of the information system user. This concern has seemingly grown from a realization that an information system is only as good as its users perceive it to be, and that users usually perceive a system as good to the extent which it meets their needs. This seeming circularism may sound unnecessarily vague and evasive, but it is a fact that the most elegantly designed system, which may possess all kinds of technical "bells and whistles," will be nothing more than a hollow exercise if it cannot deliver a meaningful product. William Paisley in his chapter on "Information Needs and Uses" in the Annual Review of Information Science and Technology, Volume 3 cites several studies showing that the only real evaluation which can be

TABLE 2

Reaction Scale--Basic Information System Assumptions

ASSUMPTION

1. Disagree (8.5) Agree
1 5 9

2. Disagree (7.1) Agree
1 5 9

3. Disagree (7.4) Agree
1 5 9

4. Disagree (8.2) Agree
1 5 9

5. Disagree (7.1) Agree
1 5 9

6. Disagree (7.4) Agree
1 5 9

7. Disagree (7.4) Agree
1 5 9

8. Disagree (7.7) Agree
1 5 9

9. Disagree (7.9) Agree
1 5 9

10. Disagree (7.8) Agree
1 5 9

11. Disagree (7.1) Agree
1 5 9

12. Disagree (6.8) Agree
1 5 9

Overall average -- 7.5 (11 of 34 forms returned) placed upon a piece of information is that which the user imposes upon it (24, p. 8). This point is reinforced by the results of the Information System Survey which indicated that the respondents wished to have some degree of control and selection over the nature and quality of the information which is being provided them. In question C1, "Having an information specialist do the necessary searching and procurement for you" ranked behind "Have an information specialist do a preliminary search with the option of obtaining more information or the actual items as you wish" and "Have a resource collection directly available," out of four choices. In question B3, where it was asked if "...you need to be aware of the sources from which information originates as long as it is available in relation to your needs," the reaction of 75 respondents was that they did need to know where the information came from while 14 did not. As one person commented marginally on this question, he wanted to be able "to judge the compentency of the reporting agent."

An even more compelling reason for any information system to be based on user requirements is that in so doing the system should be provided with a built-in barometer of relevance. If an information system assumes the user as its ultimate focal point it should, therefore, almost automatically place emphasis on direct service and not on administrative, bureaucratic, or technical considerations. Another direct benefit of this type of focus is that system content can be built directly from the expressed needs of the ultimate consumers of the information system's products which in turn should assume a high rate of use and relevancy. Additionally, a system responsive to user desires should provide immediate feedback on irrelevant materials and practices.

An important concomitant output of tuning the information system to the user's needs is the identification of voids in the State Information fabric. If the

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system cannot come up with relevant information to satisfy a stated need in an area of reoccurring concern, then that area probably should be examined as a prime one for exploration and development.

The "User Needs and Preparation" section of this report's bibliography lists several documents which shed additional light on the topic of relevancy to the user (see entries 205 through 211).

The interface delegate or "warm and walking computer terminal" (Appendix D, p. 11) is another factor critical to an effective information system. As information transfer is basically a communications process, and an information system is a means of gaining organized access to information in its various direct and mediated forms, a critical element in the entire procedure is the mechanism for matching user needs with available resources. Despite various existing theoretical and fanciful projections of the possibilities of computer matching of questions and resources, no such mechanical device presently exists on a continually operative large scale basis (see section on "On-Line Remote Inquiry" in Appendix C). Furthermore, the critical act in the question/resources matching process is that of query negotiation. This procedure is above all an intensely human one which entails an intellectual probing and jousting process to identify and define the exact dimensions of the question at hand and to enable productive search strategy formulation. Without the human interface, given the present state-of-the-art, there is no other presently viable way to ask those questions which are necessary to allow an effective and meaningful search of available resources. (See Appendix F for a listing of questions basic to the negotiation process.)

Another technical limitation which necessitates human intervention is that the face of the information services map is not a completely intelligible and cohesive one to the occassional traveler, and indeed is a constantly shifting one even for the continual and experienced practitioner. There is literally no complete systematic way to organize potentially valuable information for use without a human being as the integrative factor. Only the connectiveness and gestalt which a human is capable of can produce acceptable order out of the semi-structured chaos now present in the educational information services picture.

In the section on the "Relation of the State System to Local and Natural Resources," further on in this report, the relationship of local and national resources to the State system is explored in some detail. The point is made there that vertical articulation is a two-way process involving both upward and downward flow. It is also pointed out that coordination of national, state, regional, and local resources reduces duplication of effort and unnecessary redundancy. A point that is not made solidly, however, is that there is a great need to help develop local information systems which are directly related and compatible with state and national information services. System Development Corporation's Reference Manual for Educational Information Service Centers states that:

> Of primary concern for each (local) center is the courting of the educational elements of the community within its geographical area of responsibility--that is, the principals, teachers, superintendents, counselors, librarians, and other school professionals who are potential users of a center's services. (217, p. 44)

Only a local district center can truly provide the type of intimate association implied above on an ongoing and immediately responsive basis. This fact does not diminish the regional center's role, however, but reinforces it as a back-up facility to the local center in providing more specialized services and greater breadth of view.

The [illegible]

The Michigan-Ohio Regional Educational Laboratory (MOREL) has also identified the support of the information system efforts of others as one of the significant dimensions of its Regional Information System (RIS) model (115, 116, 124, 214).

One other factor which lends critical significance to the generation of local district information service programs is the quality of communication systems which Everett Rogers identifies as homophily, that is, the fact that humans tend to communicate more effectively with those which they perceive as being like themselves. Simply stated this means that we tend to be able to understand and trust those who are more like us than those who are not, or put still differently: liqes attract, unlikes repel, at least where meaningful communications are concerned.

William Paisley, in an invited address before the American Educational Research Association (66), explored this same concept from a slightly different point of view, in the context of information services, when he discussed vertical and horizontal communication of information. He stated:

> It is only recently that we have begun to distinguish between "horizontal" and "vertical" flow of scientific information and specialized knowledge in general....By horizontal knowledge transfer I mean *utilization of knowledge at the same level of expertise at which it was produced*. If an expert in educational testing adopts a procedure developed by an equally expert colleague, that is horizontal knowledge transfer. If the procedure is adopted by an educational research who is not expert in *that* area, then the transfer is still mainly horizontal but also somewhat vertical.. that is, there is *utilization at another, usually lower level of expertise* (the underling is the author's) (66, p. 11).

Paisley goes on to say that in only one other field beside education, public health, is the distinction between horizontal and vertical knowledge transfer as significant as it is in education. Public health and education are unique in their deep, stratified audiences for information.

> Beginning with the small group of equally expert researchers, we move down one step to researchers in others, adjacent specialities and to graduate students working to develop expertise in the field. Then

> there are non-researching professors and consultants. Below them we find practitioners of various kinds. Then public decision-making bodies. Finally, the general public, very remote from the new knowledge that will affect it in many ways.
>
> Down a different paht comes information of interest to product developers. Proof that they have utilized the knowledge is the product they have to sell. Their agents, the marketers seek to motivate groups of practitioners and to facilitate adoption of the product by them. In many cases, because of a close correspondence between knowledge elements and product attributes (e.g., as in a workbook based literally on the Bloom Taxonomy), adoption of the product imples acceptance of the knowledge that led to its development...
>
> It is important to add that knowledge can originate anywhere on the vertical ladder and can be utilized at that level or at any other level. (66, p. 12)

If we tend to gain knowledge and trust information given to us by those with whom we perceive as being like us (homophily) and if we are involved in the information transfer process in a deeply stratified field, then the local information center which is familiar and yet directly connected to the local to national information services hierarchy is a critical facility in effective information transfer for improvement of educational practice. (See the publications of the Far West Laboratory for Educational Research and Development for an elaboration on local district information services, bibliography entries 136, 137, 138, 139 and 140.)

Question B4 on the Information System Survey asked if Department members would "...like to be kept currently aware of new publications, reports, projects, and other activities," in areas which they specify. The response to this question was the most decisive of any on the entire questionnaire. Only 2 said no while 101 said yes. In the follow-up questions for those who indicated that current awareness services would be of value to them, 48 indicated that they would like an abstract of the publication or activity and 47 that they would like an initial listing with provision for more information if desired. Clearly, there is a very strong need to be kept current.

There will be no attempt in this commentary to explore the particular techniques associated with current awareness procedures as that topic is handled quite thoroughly in Appendix H. A few points regarding current awareness, as it is paired with reference services to the host agencies of information services, should be made, however.

Any facility which engates in or supports information service activity acquires a built-in, concomitant, benefit, i. e. it "owns" its own reference and current awareness service facility. There is a very real danger in this relationship, however, in that the facility can become preoccupied with (or be preempted for) internal use, thus subverting or at least reducing external service and effectiveness. In view of this fact it is probably wise to build into the structure of the center (in the case of this report the State Department, intermediate district, or other host agency) a mechanism for handling the preemption problem while seeking at the same time to provide an effective in-house information service. The procedure suggested for the Michigan State System, at the State Department level, is to provide a Departmental Reference Station in the Capitol are (see Figure 6). The primary purpose of this unit is immediate, personal service through a human interface agent, but a secondary outcome of the arrangement should be some protection, or at least filtering of requests, for the Central Coordinating Office. At the local level, where there would probably be no significant physical separation between the service unit and the internal users, it would be even more important to set up a mechanism specifically for handling in-house needs. Perhaps an assignment of one staff member to handle internal requests or initial screening of such requests by the center director would satisfy this requirement. In whatever way it is handled, and the problem will most likely occur, great care should be taken to establish procedures which foster and do not defeat internal service while still not subjugating the center to a relatively few influential personages.

A special category of internal service which will be faced by the Departmental Reference Station and, to a lesser extent, the Central Coordinating Office is service to the Michigan Legislature. Needless to say service to the Legislature has a very high priority, in fact such a high priority that it could well preempt other types of service if its volume became large. Fortunately the State Library maintains two direct legislative information service facilities. The Cass Branch Library is adjacent to the State Capitol and has a comprehensive general legislative reference collection for use by State agencies and employees which includes books, documents, magazines, pamphlets, and clippings. There is also a Legislative Reference Station in the Capitol itself manned by a legislative reference specailist. These two specialized units should be the first and most immediate sources of information for legislators.

Another source of information for legislative requirements, of course, is that which comes from Department staff members, either as the result of a particular request on the part of a legislator or that which is provide in support of legislation which the department is promoting. In either case the Department staff members would be the persons handling the request who would in turn bring it to the Departmental Reference Station for handling. In a few instances direct requests for information for the Legislature would be received and would, of course, be serviced; but with the triple services of the Cass Branch Library, the Legislative Reference Station, and the Department staff, these requests should be minimal.

The last aspect of the basic assumptions which will be directly commented upon is the need for the availability of a variety of information products.

The Goodman model delineates the broad category of knowledge available to us and the bibliographic chain concept provides a sequential view of the organization of the basic content of the Michigan Educational Information System (print, human, and institutional resources). We have not really addressed the variety of specific information formats which are available to us, however. Appendix J gives some idea of the variety and scope of media available but stresses print formats and deemphasizes audiovisual materials. The Murdock-Liston model includes variety of media in its "primary recorded media channel" but again is not nearly as explicit as necessary. One researcher has identified the basic media, and, therefore, information product formats, as: still pictures, motion pictures, television, three-dimensional objects, audio recordings, programmed instruction, print materials, and oral presentation. All of these categories should be present and avilable from an information system if it is going to meet the varied needs of the unique clientele which it is intended to serve. Comments on the areas which are excluded from the System (mangement information, information dissemination, and audiovisual materials) are treated in the "Allied Areas" section under the portion of the report devoted to recommendations.

The Major System Components and Their Functions

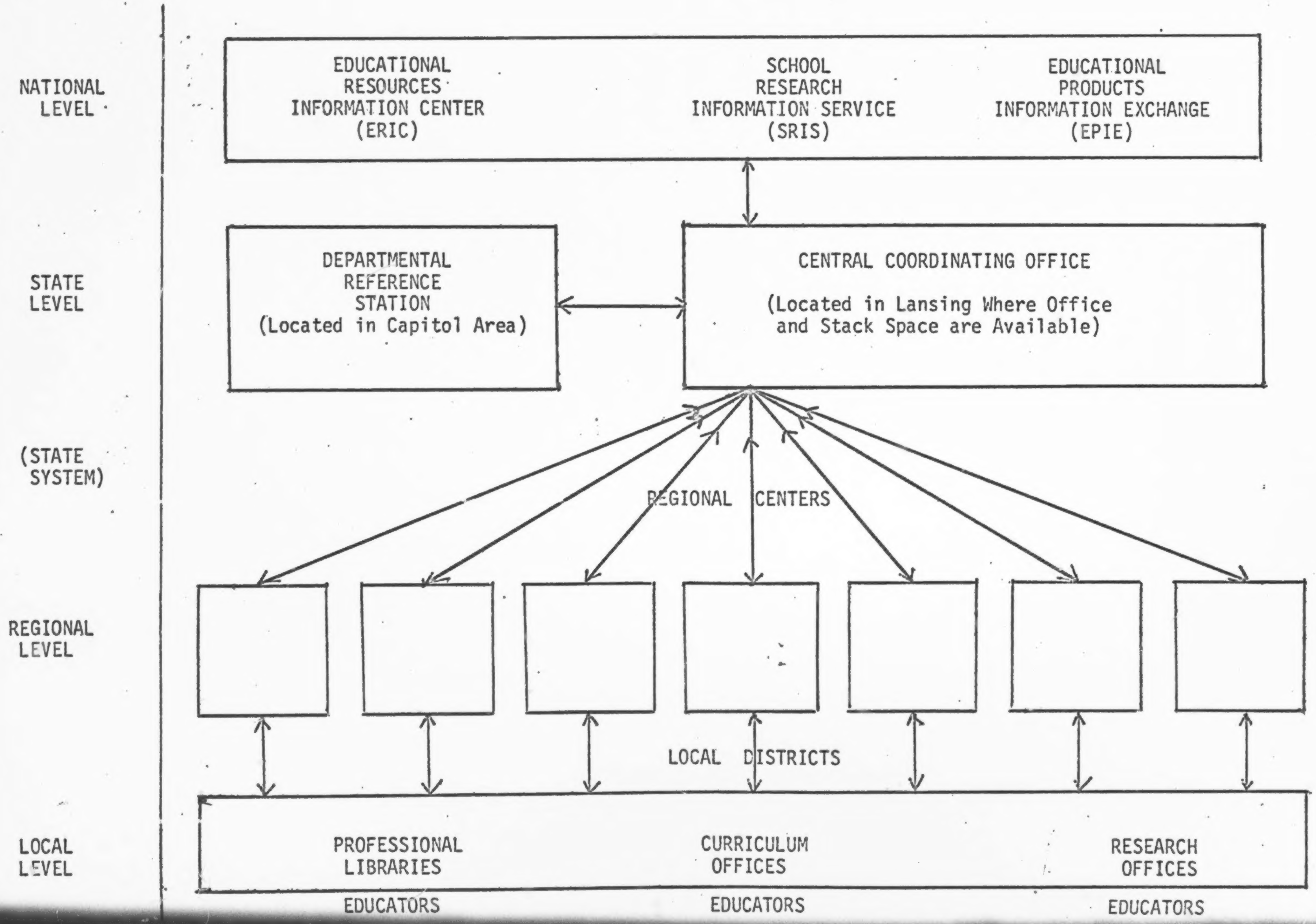
Following from the preceding assumptions and supporting commentary, the recommended structure of the Michigan Educational Information System is shown in Figure 7. The major functions recommended for each component shown there are:

Central Coordinating Office

- COORDINATE, EVALUATE, AND PUBLICIZE SYSTEM
- MAINTAIN HUMAN AND INSTITUTIONAL RESOURCE BANK
- MAINTAIN SPECIAL COLLECTIONS OF GENERAL VALUE

FIGURE 7

A MICHIGAN EDUCATIONAL INFORMATION SYSTEM


NATIONAL LEVEL
STATE LEVEL
(STATE SYSTEM)
REGIONAL LEVEL
LOCAL LEVEL
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
SCHOOL RESEARCH INFORMATION SERVICE (SRIS)
EDUCATIONAL PRODUCTS INFORMATION EXCHANGE (EPIE)
DEPARTMENTAL REFERENCE STATION (Located in Capitol Area)
CENTRAL COORDINATING OFFICE
(Located in Lansing Where Office and Stack Space are Available)
REGIONAL CENTERS
LOCAL DISTRICTS
PROFESSIONAL LIBRARIES
CURRICULUM OFFICES
RESEARCH OFFICES
EDUCATORS
EDUCATORS
EDUCATORS

- HAVE UNION CATALOG OF ALL SYSTEM HOLDINGS
- MAINTAIN COMPREHENSIVE REFERENCE COLLECTION
- REPACKAGE AND SYNTHESIZE INFORMATION IN AREAS OF GENERAL CONCERN
- MAINTAIN TELEPHONE AND TELEFACSIMILE LINKS WITH ALL PARTS OF THE SYSTEM
- PROVIDE SYSTEM DEVELOPMENT LEADERSHIP
- CARRY OUT CENTRALIZED TECHNICAL PROCEDDING WHERE APPROPRIATE
- IDENTIFY AND ASSESS STATE-WIDE NEEDS
- COORDINATE WITH NATIONAL SYSTEMS AND RESOURCES

Departmental Reference Station

- PROVIDE REFERENCE SERVICES TO THE DEPARTMEN
    - REFERENCE SPECIALIST (INTERFACE DELEGATE)
    - TELEPHONE, DELIVERY, AND TELEFACSIMILE LINK TO CENTRAL OFFICE
    - READY REFERENCE COLLECTION
    - COLLECTION OF DEPARTMENTAL PUBLICATIONS
    - INFORMATION FILE ON CRITICAL ISSUES
- COORDINATE DEPARTMENTAL CURRENT AWARENESS SERVICES
- COORDINATE IDENTIFICATION OF HUMAN AND INSTITUTIONAL RESOURCES BY DEPARTMENT STAFF

Regional Centers

- PROVIDE REFERENCE AND CURRENT AWARENESS SERVICES TO LOCAL DISTRICTS AND EDUCATORS
- MAINTAIN A COMPREHENSIVE EDUCATIONAL REFERENCE COLLECTION
- IDENTIFY, GATHER, AND PROCESS LOCAL MATERIALS FOR CENTER AND SYSTEM USE
- IDENTIFY HUMAN AND INSTITUTIONAL RESOURCES AND EVALUATE THEM AS TO THEIR RELEVANCE TO REGIONAL AND STATE-WIDE NEEDS

- CREATE AND MAINTAIN SPECIAL COLLECTIONS IN AREAS OF REGIONAL INTEREST FOR CENTER AND SYSTEM-WIDE USE

- CREATE AND MAINTAIN AN INFORMATION FILE ON SIGNIFICANT TOPICS

- IDENTIFY AND ASSESS REGIONAL NEEDS

- PUBLICIZE THE SYSTEM AND MAINTAIN CLOSE LIASION WITH LOCAL DISTRICTS AND EDUCATORS

- ASSIST LOCAL DISTRICTS TO ESTABLISH THEIR OWN INFORMATION SERVICES AND TRAIN LOCAL PERSONNEL

- ACT AS A REFERRAL AGENCY TO SOURCES OF MANAGEMENT INFORMATION, DISSEMINATION ACTIVITIES, AND AUDIOVISUAL MATERIALS AND EQUIPMENT

Further detail on the unique and/or specialized component functions can be obtained from the following sources:

- The Searching Process--Appendix F and Bibliography entires 154, 164, 165, 166, 168, 179, 182, 184, 187, 190, 195, 197, 198, 199, 200, 202, and 203

- Human and Institutional Resource Bank--Appendix G and Bibliography entries 115, 116, 123, 124, 125, 214

- Current awareness--Appendix H and Bibliography entries 156, 157, 158, 159, 175, 177, and 178

- Telefacsimile Transmission--Bibliograpy entires 193 and 194

- Repackaging and Synthesis--Appendix I

- Departmental Reference Station Collection--Appendix E

- Information File and Special Collections--Appendix J

Recommended Locations for Components

As indicated on Figure 7, THE RECOMMENDED LOCATION FOR THE CENTRAL COORDINATING OFFICE IS SOMEWHERE IN THE LANSING AREA WHERE OFFICE AND BOOKSTACK SPACE ARE AVAILABLE. It would also be of great advantage to have this Central Office physically and administratively connected to a unit of the State Department of Education which is in the business of storing and retrieving information. The most logical Department unit to assume this responsibility, in the investigator's opinion, would be the Bureau of Library Services. (Please see Appendix L for staff, space, equipment, and materials needs for this office.)

IT IS RECOMMENDED THAT THE DEPARTMENTAL REFERENCE STATION BE LOCATED IN THE CAPITOL AREA. In relation to Basic Assumptions 1, 2, 3, 4, and 8, and the results of Survey question C3, it is seen as necessary to have a human "interface delegate" or "warm and walking computer terminal" available for direct, interpersonal information query negotiation and formulation of search strategies. Additionally, a high percentage of reference questions can usually be answered almost immediately from a "ready reference" collection such as that suggested for the Reference Station in Appendix E. For those reasons, it is essential that some space be available for a Departmental Reference Station in the Capitol area where most Department units are located. The most logical location, in the estimate of the investigator, would be the offices of the Curriculum Division in terms of both central physical location and Department function. If curriculum is indeed a "plan for learning" as Hilda Taba stated, the focus of informational support should be within the division that has curriculum planning and regulatory responsibility.

Regarding the location of regional centers, a different set of parameters appear. Two questions which are basic are: How many centers? and, In what locations? Only one document in the review of the literature addressed itself specifically to the factors involved in placement of regional centers, and then it did so in the context of another state, Pennsylvania (129). An additional source, which addressed itself specifically to Michigan, was a proposed law to restructure the number of Michigan intermediate school districts.*

---

*Memorandum from Ira Polley, State Superintendent of Public Instruction to Members of the State Board of Education, dated November 26, 1968 concerning: "Proposed Legislation for the Reorganization of Intermediate School Districts and the Adding Additional Powers and Responsibility to These Districts."

In addition to those printed sources of information the investigator asked several local and intermediate school district administrators, staff members from three intermediate school districts. ESEA Title III centers, and the assembled Title I regional coordinators their thoughts as to the appropriate placement of regional centers. In summary, these sources identified the following parameters for regional center placement as being relevant:

1. Each center should be within reasonable driving time. (The suggested State Legislation stated that one and one-half hours was the maximum driving distance a person should be asked to travel. The Pennsylvania study found 20 miles or 45 minutes driving time to be realistic). Several of the persons interviewed, from rural as well as urban areas, pointed out that driving time and not actual mileage should be the criteria for distance.
2. The size of the service population should be an important consideration. There should be more centers where there are more people.
3. No center should be further than the distance of a low cost telephone call.
4. Service should be placed in terms of regions which have some preexisting cohesiveness and regional identify, e.g. Southeastern Michigan.
5. Whenever possible a regional information center should be attached to or be integrated into a preexisting educational unit such as an intermediate school district, regional ESEA Title III Center, or other governmental or cooperative unit.
6. Thomas Clemens made the point that "bad information will drive out good information, if good information is unaccessible" (Appendix D, p. 11).

Two cautions which are received were:

1. Any given single intermediate school district would be too small a service area for economy (assuming strong local district information services).
2. Effective interrelationships can be established even at significant travel distances if the product is perceived as being valuable and is not otherwise locally available.

The Pennsylvania study also made some additional points which are more generally relevant to regional centers:

1. Collections should be developed with depth, diversity, and breadth.
2. Maintenance of size standards for collections is also important.
3. Related access factors like parking and ease of borrowing materials are essential.
4. An intensive publicity campaign is needed, calling for better communication between local and district levels.
5. The data collected illustrate that the successful use of district center libraries confirm their importance (129, p. 14).

Stemming from the above fairly general guidelines, IT IS TENTATIVELY RECOMMENDED THAT APPROXIMATELY SEVEN REGIONAL INFORMATION CENTERS BE ESTABLISHED HAVING THE FOLLOWING GENERAL SERVICE AREAS:*

---

*If the recent recommendation of the Governor's Commission on Educational Reform that, "intermediate school districts be discontinued and replaced by 10-15 regional education areas" is implemented, these area facilities should provide ideal locations for the regional components of the state-wide information system. If a series of regional areas are created, the recommendations for locating given herein would be clearly superceded. The functions of the regional centers would remain as recommended, however, and indeed should be vastly reinforced under this new circumstance.

SOUTHEAST (WAYNE, OAKLAND, MACOMB, ST. CLAIR, WASHTENAW, MONROE AND LIVINGSTON COUNTIES)

SOUTHCENTER (HILLSDALE, BRANCH, JACKSON, CALHOUN, INGHAM, LENAWEE, AND EATON COUNTIES)

SOUTHWEST (ST. JOSEPH, CASS BERRIEN, VAN BUREN, KALAMAZOO, ALLEGAN, BARRY, OTTAWA, KENT, IONIA, AND MUSKEGON COUNTIES)

WEST (OCEANIA, NEWAYGO, MECOSTA, MONTCALM, MASON, LAKE, OSCEOLA, MANISTEE, WEXFORD, AND MISSAUKEE COUNTIES)

EAST CENTRAL (LAPEER, CLARE, GENESEE, SHIAWASSEE, CLINTON, GRATIOT, SAGINAW, TUSCOLA, SANILAC, HURON, MIDLAND, BAY, ISABELLA, GLADWIN, AND ARENAC COUNTIES)

NORTH (BENZIE, GRAND TRAVERSE, KALKASKA, CRAWFORD, ROSCOMMON, OGEMOW, IOSCO, OSCODA, ALCONA, ANTRIM, OTSEGO, MONTMORENCY, ALPENA, CHARLEVOIX, EMMET, CHEBOYGAN, AND PRESQUE ISLE COUNTIES)

UPPER PENINSULA (ONE CENTRALLY LOCATED OR TWO, EASTERN AND WESTERN CENTERS. IF ONE CENTRALLY LOCATED CENTER IS CHOSEN, SERIOUS CONSIDERATION SHOULD BE GIVEN TO ASSOCIATING IT WITH THE STATE LIBRARY'S UPPER PENINSULA BRANCH AT ESCANABA.)

It should be noted that there are several ESEA Title III centers which are strategically located in the areas defined above. The ASSIST Center (Wayne County), EPIC Center (Calhoun County), Regional Enrichment Center (Kalamazoo County), and Impact 7 (Reed City) are notable examples. Additionally, intermediate school districts such as COOR (Crawford, Oscoda, Ogesnaw, and Roscommon Counties) and Saginaw (Saginaw Instructional Materials Center) might provide fertile locations for information center activity.

The number and locations of regional information centers will certainly depend upon future funding considerations which are not at all clear at the time of this report. State funds, through legislation such as that presently being advocated to establish intermediate school district materials centers (HR3041) and ESEA Title III monies, would seem to be logical funding sources above and beyond local effort. (See Appendix L for a description of one operational regional center which could be considered a prototype and could provide cost data.)

Relation of the State System to Local and National Resources

The three major national information services presently available are the Educational Resources Information Center (ERIC), the School Research Information Service (SRIS), and the Educational Products Information Exchange (EPIE). ERIC is a decentralized nationwide information system which acquires, abstracts, stores, and disseminates significant document and project information stemming from research and practice. The focus of ERIC is one those documents and federally supported projects not normally available to educators through traditional channels (89, 90, 91). SRIS is an agency of Phi Delta Kappa, national honorary educational fraternity, and it gathers and disseminates reports of educational research and innovative practices with particular emphasis on materials produced at the local school system level. SRIS also acts as an interface agent for the ERIC system. EPIE organizes and exchanges information about the availability, nature, and effectiveness of instructional equipment and materials.

The above and other national resources are presently available to educators (see Appendix F for other significant national resources). There are presently very few state and regional systems available, however, to coordinate these national resources with local needs. Lee Burchinal, Director, Division of Information Technology and Dissemination, U. S. Office of Education, states that:

> For large scale information systems to be fully effective, information services must be developed and available locally -- not farther than a local call or a short drive. A law of inverse distances, physical, bureaucratic, or in terms of the closeness of personal relationship involved, probably applies between willingness to seek and use new information and the directness and ease of access to the information desired...
>
> All of this leads to an obvious deduction: local information service centers, located within the immediate working environment of the potential users, are needed to bridge the gap between users' immediate needs and the vast storehouse of information available through various information systems such as ERIC (110, p. 8).

Burchinal goes on to state that these local one-stop information centers, as he terms them, should:

1. Become and remain familiar with all important large scale sources of knowledge that could be usefully applied to development of educational programs in any field.
2. Know the operational requirements of systems. Specialists in one-stop centers should not only indicate what kinds of information might be forthcoming from a given system or combination of them, but also how long it should take to obtain an answer, its form, and if, there is a charge, the cost.
3. Act as an important intermediary between the user with a live question in his own concepts or terms and the more formal language of storage and retrieval of the system (interface delegate).
4. Become a "listening post" and source of information concerning user information needs (110, p. 8).

State or regional information centers are needed therefore to become local delegates for the national system. Burchinal also identifies four natural locations for these local delegate service centers: regional educational laboratories, state agencies, large school systems, and ESEA Title III regional centers (110, p. 9).

If state and regional centers are necessary for the effective use of information residing in national resource systems, what can a regional or state system contribute to the national information utilization effort? As pointed out earlier, one of the functions of the proposed Central Coordinating Office would be to, "coordinate with national systems and resources" and the Regional Center should "identify, gather, and process local materials for center and system use." It therefore follows that the state and regional units can perform a badly needed service by identifying, screening, and incorporating local resources into the national system, as well as acting as a delegate agency for the national system. The Far West Laboratory for Educational Research and Development, as part of its intensive Communications Program, has identified the absorption of local materials as one of the most neglected areas of significance in the local to national information resources hierarchy (138, p. 49). The importance of the local school district's role in providing information services is emphasized in the publications of that laboratory's Communication Project. This project addresses itself to educational research and development information system requirements (138), decision processes and information needs (137, 139), arrangements and training for effective use of educational research and development information (136), and the role of the local district school research office in the information process (140).

The Michigan Educational Information System, which is designed to be operative mainly at the state and regional levels, assumes careful consideration of national resources as well as local resources and needs. This attention to total local through national information system articulation is the only reasonable and economical approach to the design of any educational information system today, in the considered opinion of the Project investigator. Furthermore, built-in concern and sensitivity to local needs is probably the most effective means of keeping the focus of the total information system on the needs of individual learners at the local school level who are, after all, the ultimate consumers.

RECOMMENDATIONS

Summary

The recommendations of the report are summarized in this section in the order which they appear in the text:

1. HUMAN, INSTITUTIONAL, AND PRINT AND OTHER MEDIA RESOURCES SHALL BE THE BASIC CONTENT OF THE SYSTEM (See pages 17 through 23 for detail).
2. THE ASSUMPTIONS BASIC TO THE SYSTEM SHOULD BE:
    a. THE SYSTEM SHOULD BE BUILT ON USER REQUIREMENTS. THE END PRODUCT OF THE SYSTEM SHOULD BE USER SERVICE.

    b. THE USER IS THE BEST JUDGE OF THE RELEVANCE OF AN ITEM OF INFORMATION TO HIS NEEDS.

    c. A "WARM AND WALKING COMPUTER TERMINAL" SHOULD STAND AT THE INTERSECTION OF USER REQUIREMENTS AND SYSTEM'S RESOURCES (INTERFACE DELEGATE).

    d. EASE OF ACCESS, CURRENCY OF INFORMATION, AND RAPIDITY OF SERVICE ARE CRITICAL. OF THESE, ACCESS TO THE HUMAN INTERFACE AGENT AND INFORMATION ARE THE MOST IMPORTANT.

    e. THERE SHOULD BE TWO-WAY VERTICAL ARTICULATION WITHIN THE SYSTEM (USER NEEDS TO MATERIALS AND MATERIALS TO USER NEEDS). THIS ARTICULATION SHOULD EXTEND BETWEEN AND THROUGHOUT THE FOUR NATURAL LEVELS OF A TOTAL EDUCATIONAL SYSTEM (NATIONAL, STATE, REGIONAL, AND LOCAL).

    f. THE MICHIGAN SYSTEM SHOULD CONCENTRATE ITS EFFORTS AT THE STATE AND REGIONAL LEVELS, WHILE ALWAYS TAKING INTO CONSIDERATION NATIONAL AND LOCAL NEEDS AND RESOURCES. EXISTING RESOURCES SHOULD NOT BE DUPLICATED, BUT, SHOULD BE COORDINATED AND SUPPLEMENTED. THIS COORDINATION SHOULD TAKE PLACE WITHIN THE STATE DEPARTMENT OF EDUCATION.

    g. THE SYSTEM SHOULD SUPPORT AND PROMOTE THE DEVELOPMENT OF LOCAL INFORMATION SYSTEM EFFORTS WHICH ARE CONSISTENT WITH THE PURPOSES AND STRUCTURE OF THE STATE-WIDE SYSTEM.

h. THE SYSTEM SHOULD PROVIDE INTERNAL REFERENCE AND CURRENT AWARENESS SERVICES TO THE HOST AGENCY OR UNIT (STATE DEPARTMENT OF EDUCATORS, INTERMEDIATE SCHOOL DISTRICT).

i. THE INFORMATIONAL CONTENT OF THE SYSTEM IS KNOWLEDGE IN ALL FORMS AND FORMATS. EACH FORM OF INFORMATION IS ASSUMED TO HAVE ITS OWN INTEGRITY, E.G. IT SHOULD BE USED WHEN AND WHERE IT CAN DO THE JOB BETTER THAN ANY OTHER FORM OF INFORMATION IN RELATION TO ITS PARTICULAR STRENGTHS AND WEAKNESSES.

j. THE TECHNICAL FUNCTIONS OF THE SYSTEM SHOULD INCLUDE:

- MATERIALS EVALUATION
- ACQUISITION
- TECHNICAL PROCESSING
- STORAGE FOR RETRIEVAL
- ACCESS FOR USE
- EVALUATION OF SYSTEM RELEVANCY AND PERFORMANCE

ALSO INCLUDED SHOULD BE:

- ACQUISITION AND PROCESSING LOCAL AND STATE LEVEL DOCUMENTS IN PARTICULAR
- QUERY NEGOTIATION AND FORMULATION OF SEARCH STRATEGIES
- CURRENT AWARENESS OF NEW INFORMATION RESOURCES
- AVAILABILITY OF A VARIETY OF INFORMATION PRODUCTS, FROM EDUCATION AND RELATED AREAS, TO MEET VARYING USER NEEDS
- PACKAGING AND REFORMULATION OF INFORMATION IN AREAS OF HIGH REQUEST REDUNDANCY
- ANALYSIS OF OUTPUT WHERE NEEDED
- IDENTIFICATION OF VOIDS IN THE STATE INFORMATION FABRIC TO POINT OUT AREAS OF NEED AND DEVELOPMENT POTENTIAL.
- PUBLICIZING THE SYSTEM'S SERVICES AND ACTIVITIES TO POTENTIAL USERS

k. EACH CENTER AT THE REGIONAL LEVEL SHOULD SPECIALIZE IN AREAS OF PARTICULAR LOCAL CONCERN FOR THE BENEFIT OF THE ENTIRE SYSTEM.

l. MANAGEMENT INFORMATION, INFORMATION DISSEMINATION, AND THE PRODUCTION AND UTILIZATION OF AUDIOVISUAL MATERIALS ARE COMPLEMENTARY AND RELATED AREAS WHICH, WHILE NOT BEING THE DIRECT CONCERN OF THE SYSTEM, SHOULD BE TAKEN INTO ACCOUNT IN THE SYSTEM'S DESIGN AND OPERATION.

(See pages 23 through 33 for detail)

3. THE MAJOR OPERATIONAL COMPONENTS OF THE SYSTEM (LISTED BY COMPONENTS AND THEIR ASSOCIATED FUNCTIONS) SHOULD BE:

a. CENTRAL COORDINATING OFFICE

- COORDINATE, EVALUATE, AND PUBLIZE SYSTEM
- MAINTAIN HUMAN AND INSTITUTIONAL RESOURCES BANK
- MAINTAIN SPECIAL COLLECTIONS OF GENERAL VALUE
- HAVE UNION CATALOG OF ALL SYSTEM HOLDINGS
- MAINTAIN COMPREHENSIVE REFERENCE COLLECTION
- REPACKAGE AND SYNTHESIZE INFORMATION IN AREAS OF GENERAL CONCERN
- MAINTAIN TELEPHONE AND TELEFACSIMILE LINKS WITH ALL PARTS OF THE SYSTEM
- PROVIDE SYSTEM DEVELOPMENT LEADERSHIP
- CARRY OUT CENTRALIZED TECHNICAL PROCESSING WHERE APPROPRIATE
- IDENTIFY AND ASSESS STATE-WIDE NEEDS
- COORDINATE WITH NATIONAL SYSTEMS AND RESOURCES

b. DEPARTMENTAL REFERENCE STATION

- PROVIDE REFERENCE SERVICES TO THE DEPARTMENT

    REFERENCE SPECIALIST (INTERFACE DELEGATE)
    TELEPHONE, DELIVERY, AND TELEFACSIMILE LINK TO CENTRAL OFFICE
    READY REFERENCE COLLECTION
    COLLECTION OF DEPARTMENTAL PUBLICATIONS
    INFORMATION FILE ON CRITICAL ISSUES

- COORDINATE DEPARTMENTAL CURRENT AWARENESS SERVICES
- COORDINATE IDENTIFICATION OF HUMAN AND INSTITUTIONAL RESOURCES BY DEPARTMENT STAFF

c. REGIONAL CENTERS

- PROVIDE REFERENCE AND CURRENT AWARENESS SERVICES TO LOCAL DISTRICTS AND EDUCATORS
- MAINTAIN A COMPREHENSIVE EDUCATIONAL REFERENCE COLLECTION
- IDENTIFY, GATHER, AND PROCESS LOCAL MATERIALS FOR CENTER AND SYSTEM USE
- IDENTIFY HUMAN AND INSTITUTIONAL RESOURCES AND EVALUATE THEM AS TO THEIR RELEVANCE TO REGIONAL AND STATE-WIDE NEEDS
- CREATE AND MAINTAIN SPECIAL COLLECTIONS IN AREAS OF REGIONAL INTEREST FOR CENTER AND SYSTEM-WIDE USE
- CREATE AND MAINTAIN AN INFORMATION FILE ON SIGNIFICANT TOPICS
- IDENTIFY AND ASSESS REGIONAL NEEDS
- PUBLICIZE THE SYSTEM AND MAINTAIN CLOSE LIASON WITH LOCAL DISTRICTS AND EDUCATORS
- ASSIST LOCAL DISTRICTS TO ESTABLISH THEIR OWN INFORMATION SERVICES AND TRAIN LOCAL PERSONNEL

- ACT AS A REFERRAL AGENCY TO SOURCES TO MANAGEMENT INFORMATION, DISSEMINATION ACTIVITIES, AND AUDIOVISUAL MATERIALS AND EQUIPMENT

(See pages 33 through 35 for detail)

4. THE LOCATIONS FOR THE MAJOR SYSTEM COMPONENTS SHOULD BE:

    a. CENTRAL COORDINATING OFFICE - BUREAU OF LIBRARY SERVICES

    b. DEPARTMENTAL REFERENCE STATION - BOARD OF WATER AND LIGHT BUILDING (CURRICULUM DIVISION)

    c. REGIONAL CENTERS - APPROXIMATELY SEVEN CENTERS SHOULD BE ESTABLISHED GIVING PRIMARY SERVICE TO SPECIFIED REGIONAL SERVICE AREAS. WHERE POSSIBLE REGIONAL CENTERS SHOULD BE ASSOCIATED WITH EXISTING FACILITIES SUCH AS ESEA TITLE III REGIONAL CENTERS OF INTERMEDIATE SCHOOL DISTRICTS. IN NO CASE SHOULD A REGIONAL CENTER SERVE ONLY ONE INTERMEDIATE SCHOOL DISTRICT, HOWEVER. (IF THE RECOMMENDATIONS OF THE GOVERNOR'S COMMISSION ON EDUCATIONAL REFORM ARE IMPLEMENTED, REGARDING REGIONAL EDUCATIONAL AREAS, THOSE AREAS SHOULD BECOME THE LOCATION OF THE REGIONAL (INFORMATION) CENTERS.)

(See pages 35 through 39 for detail)

5. THE WAYNE COUNTY ASSIST CENTER SHOULD BE CONSIDERED THE PROTOTYPE FOR THE DEVELOPMENT OF OTHER REGIONAL CENTERS (See page 48 and Appendix L).

6. THE MICHIGAN EDUCATIONAL INFORMATION SYSTEM SHOULD BE CLOSELY COORDINATED WITH LOCAL AND NATIONAL INFORMATION SERVICES TO ELIMINATE, AS FAR AS POSSIBLE, UNNECESSARY DUPLICATON AND TO PROMOTE A MORE EFFECTIVE TOTAL LOCAL TO NATIONAL INFORMATION SERVICES HIERARCHY.

(See pages 40 through 42 for detail)

Implementation--Priorities and Next Steps

It would seem, on the surface, that the ideal method of implementing the recommendations of this report would be to have them accepted and put into effect immediately as a total package. The investigator would feel quite uncomfortable with this approach, however, inasmuch as the suggested Michigan Educational Information System is actually a unique combination of components, which have been operated successfully in other circumstances, and which are recommended now to be brought together to serve the particular needs of the State of Michigan. Whenever such a unique combination of components occurs, it is wise to provide a micro trial of the macro system prior to full-scale installation. It is probably just as well, therefore, that a realistic view of the further development of the Michigan Educational Information System must assume that an immediate full developed installation would be impossible and that it will be necessary to follow a phased series of implementation steps. The following sequence of priorities is therefore recommended:

1. THE FIRST COMPONENT TO BE IMPLEMENTED SHOULD BE THE DEPARTMENTAL REFERENCE STATION AND ITS ASSOCIATED PERSONNEL AT THE STATE LIBRARY (CENTRAL COORDINATING OFFICE). THIS WOULD ALLOW THE IMPLEMENTATION OF DIRECT SERVICE TO STATE DEPARTMENT OF EDUCATION PERSONNEL, INITATE THE BASIC STRUCTURE OF THE LANSING UNIT OF THE SYSTEM, AND PROVIDE A PILOT ACTIVITY FOR THE TOTAL SYSTEM IN CONJUNCTION WITH PRIORITY 2 BELOW.

   THE PERSONNEL COMMITTMENT FOR THIS STEP WOULD BE: TWO PROFESSIONALS (INFORMATION SPECIALISTS), ONE AT THE STATE LIBRARY AND ONE AT THE DEPARTMENTAL REFERENCE STATION, AND TWO SECRETARIES, ONE AT EACH LOCATION.

   THE SPACE COMMITTMENT WOULD BE: SPACE AT THE STATE LIBRARY FOR AN EXPANDED EDUCATIONAL REFERENCE COLLECTION* AND A STANDARD SIZE OFFICE

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*It is assumed that the expansion of the educational reference collection at the State Library would roughly equal the size of the MOREL Reference Library which was given to the State Department of Education for use in its information program. See Appendix M for details.

AT CURRICULUM DIVISION IN THE BOARD OF WATER AND LIGHT BUILDING (SEE APPENDIX E FOR DETAILS). APPROPRIATIONS WOULD ALSO HAVE TO BE PROVIDED TO ESTABLISH THE DEPARTMENTAL REFERENCE COLLECTION (SEE APPENDIX E) AND MAINTAIN THE EXPANDED EDUCATIONAL REFERENCE COLLECTION AT THE STATE LIBRARY.

2. THE WAYNE COUNTY INTERMEDIATE SCHOOL DISTRICT ASSIST CENTER SHOULD BE CONTINUED BEYOND ITS PRESENT FUNDING EXPIRATION DATE (JUNE 30, 1969)* TO PROVIDE EXPANDED SERVICE TO ALL OF SOUTHEASTERN MICHIGAN AND, ON AN INTERIM BASIS (SEE PRIORITY 3) AS MUCH OF THE REST OF THE STATE AS FEASIBLE. THIS WOULD ENTAIL APPROPRIATE AUGMENTATION OF THE ASSIST BUDGET TO SUPPORT THIS EXPANDED RESPONSIBILITY.
3. A DIRECTOR OF THE MICHIGAN EDUCATIONAL INFORMATION SYSTEM SHOULD BE HIRED TO PLAN THE EFFECTIVE EXPANSION AND FULL SCALE IMPLEMENTATION OF THE SYSTEM. HIS RESPONSIBILITIES WOULD INCLUDE: EVALUATION OF THE ORIGINAL DESIGN IN LIGHT OF THE PILOT ACTIVITIES (PRIORITIES 1 AND 2) AND REDESIGN OF THE SYSTEM AS APPROPRIATE; INVESTIGATION OF FUNDING ALTERNATIVES FOR THE SYSTEM; DETAILED SPECIFICATION OF ALL REMAINING SYSTEM COMPONENTS (CENTRAL COORDINATING OFFICE AND ADDITIONAL REGIONAL CENTERS); AND IMPLEMENTATION, COORDINATION, AND FULL RESPONSIBILITY FOR THE DIRECTION OF THE COMPLETED SYSTEM.
4. UNDER A MASTER PLAN DEVISED BY THE DIRECTOR AND HIS ADVISORS, EXPANSION OF THE CENTRAL COORDINATING OFFICE AND THE ADDITION OF THE NECESSARY REGIONAL CENTERS WOULD TAKE PLACE.

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*Realistically, assurance of budget continuation for ASSIST would have to be received by early Spring (March or April) in order for the Center to maintain continuity of staff. This is a critical point as the strength of any successful enterprise usually lies in its personnel. If the ASSIST Center personnel are dissapated due to budget uncertainty, then its role as the prototype center for regional activity will certainly be vitually effected, even if the center is ultimately continued.

THE PROJECTED TIMETABLE FOR THE ABOVE PHASED PRIORITIES IS:

PRIORITY 1 -- JANUARY, 1970

PRIORITY 2 -- BUDGET, MARCH, 1970; EXPANDED SERVICE, SEPTEMBER, 1970

PRIORITY 3 -- SEPTEMBER, 1970

PRIORITY 4 -- SEPTEMBER, 1971

Allied Areas

Assumption 12 stated that:

> Management information, information dissemination, and the production and utilization of audiovisual materials are complementary and related areas which, while not being under direct concern of the System, should be taken into account in the System's design and operation.

While the areas of management information, information dissemination, and audiovisual utilization are not the direct concern of this report, they are of considerable importance to the broadly conceived operation of an information system for the State of Michigan. For that reason, a section asking questions about allied areas, and audiovisual utilization in particular, was included in the Information System Survey. The following recommendations are, therefore, given for allied areas and are based upon input from the same general information sources that generated the major recommendations of the study.

The recommendations for allied areas are:

1. THE MAJOR IMPETUS FOR THE CREATION OF A MANAGEMENT INFORMATION (DATA) SYSTEM SHOULD CONTINUE TO BE THE RESPONSIBILITY OF THE BUREAU OF RESEARCH. THE MANAGEMENT INFORMATION SYSTEM DESIGN PROJECT BEING CARRIED OUT BY DR. KI-SUCK CHUNG, OF THE BUREAU OF RESEARCH, SEEMS TO BE A SOLIDLY CONCEIVED AND FRUITFUL ONE TO THE PROJECT INVESTIGATOR. ITS PROPOSED STRUCTURE APPEARS TO BE SUCH THAT IT WILL BE ABLE TO INTERFACE WITH MINIMUM DIFFICULTY WITH THE KNOWLEDGE INFORMATION

SYSTEM PROPOSED IN THIS REPORT. IN FACE, THE OVERALL CONCEPTION OF THE BUREAU'S SYSTEM ASSUMES THE EXISTENCE OF A TECHNICAL INFORMATION (KNOWLEDGE) SYSTEM AS THIS REPORT ASSUMES THE EXISTENCE OF A MANAGEMENT INFORMATION (DATA) SYSTEM. AT THE PRESENT STATE-OF-THE-ART THESE TWO SYSTEMS COULD PROBABLY NOT BE TECHNICALLY INTEGRATED, HOWEVER.

2. INFORMATION DISSEMINATION SHOULD RECEIVE CAREFUL CONSIDERATION AND ATTENTION WITHIN THE DEPARTMENT. WHILE MEANINGFUL DISSEMINATION ACTIVITIES ARE GOING ON IN THE DEPARTMENT'S EXECUTIVE OFFICE AND AN ESEA TITLE III STAFF MEMBER HAS THE SPECIFIC ASSIGNMENT OF DISSEMINATION ACTIVITIES, CONSIDERED THOUGHT SHOULD BE GIVEN TO BUILDING A COMPREHENSIVE CURRICULUM INFORMATION DISSEMINATION PROGRAM. THIS IS PARTICULARLY IMPORTANT SINCE THE DEMISE OF THE STATEWIDE DISSEMINATION PROJECT (STADIS) WHOSE EXPERIENCE AND RECOMMENDATIONS SHOULD BE CAREFULLY CONSIDERED.

   ONE PARTICULAR ASPECT OF DISSEMINATION ACTIVITIES WHICH THE MICHIGAN EDUCATIONAL INFORMATION SYSTEM SHOULD BE DIRECTLY CONCERNED WITH IS THE SPREADING OF KNOWLEDGE ABOUT THE SYSTEM ITSELF. EVERY EFFORT SHOULD BE MADE TO MAKE THE EDUCATIONAL PUBLIC AWARE OF THE SYSTEM AND ITS SERVICES.

During the conduct of the Project several excellent studies of dissemination techniques came to light. The most exhaustive of these were by Rogers (69, 72), Havelock (35, 36), and the Michigan Department of Education (58).

Audiovisual utilization was a very pronounced concern of the Department Staff as indicated by the Information Systems Survey. Question E2, which asked "Do you feel that there is a need for an audiovisual material production capacity within the department?" was answered with 78 yes indications and 14 nos. When those who answered yes were asked if they preferred a do-it-yourself or staffed facility, 11 voted the former and 67 for the latter with 7 indicating they would prefer a combination of the two. In answer to the question "Do you feel that there is a need for greater access to audiovisual equipment," 70 answered yes and 22 no. In relation to audiovisual materials, on the same question, the response was 66 yes and 15 no. It is therefore recommended that:

1. A DO-IT-YOURSELF AUDIOVISUAL PRODUCTION FACILITY AND CENTRALIZED AUDIOVISUAL EQUIPMENT CENTER BE ESTABLISHED IN THE CAPITOL AREA FOR USE BY DEPARTMENT STAFF. THIS FACILITY SHOULD BE SUPERVISED BY A TRAINED PARAPROFESSIONAL OR TECHNICIAN UNDER THE GENERAL DIRECTION OF A CURRICULUM DEPARTMENT CONSULTANT RESPONSIBLE FOR MEDIA PROGRAMS.
2. IF POSSIBLE, THE FACILITY SHOULD BE EXPANDED TO INCLUDE A STAFF MEMBER WITH GRAPHICS ABILITY AND TRAINING.

Many of the basic inclusions for a do-it-yourself audiovisual production facility are indicated in terms 141 and 142 in the Bibliography.

Appendix A

Persons Interviewed and Places Visited

(chronological order)

Department of Education Personnel

NAME	POSITION	DATE
Dr. Ferris N. Crawford	Associate Superintendent, Bureau of Educational Services	6-4-69
Dr. Philip Kearney	Associate Superintendent, Bureau of Research	6-17-69
Mr. Kenneth Swanson	Coordinator, ESEA Title I Bureau of Educational Services	6-17-69
Mr. Marvin Beekman	Director, Special Education Bureau of Educational Services	6-18-69
Dr. J. Ray Rothermel	Assistant Superintendent, Federal Programs	6-18-69
Mr. Francis X. Scannell*	State Librarian	6-19-69
Dr. Donald G. Butcher	Coordinator, Adult Education Bureau of Educational Services	6-19-69
Dr. Norman Berkowitz	Assistant Superintendent Management and Program Content	6-20-69
Mr. Donald E. Goodson	Coordinator, ESEA Title III Bureau of Educational Services	6-25-69
Mr. Louis Kocsis	Chief, Administrator, Compensatory Education, Bureau of Educational Services	6-25-69
Dr. Ralph A. Peckham	Assistant Superintendent Vocational Rehabilitation	6-25-69
Dr. William F. Pierce	Deputy State Director Vocational Education	6-26-69
Dr. Ed Pfau	Director, Accreditation and Certification Bureau of Higher Education	6-26-69
Dr. Charles S. Ruffing*	Consultant, Instructional Materials Bureau of Educational Services	6-27-69

Mr. James Bebermeyer*	Research Coordinating Unit Bureau of Research	6-27-69
Mrs. Jane K. Walline	Consultant, Special Education Bureau of Educational Services	7-7-69
Dr. Ralph Kellogg	Director, Curriculum Division Bureau of Educational Services	7-7-69
Mrs. Mary Ann Hanna*	Head School Library Consultant Bureau of Library Services	7-7-69
Mr. Dale Mickleson*	Head, Reference Services Bureau of Library Services	7-9-69
Dr. Ki-Suck Chung*	Research Consultant Bureau of Research	7-9-69
Mrs. Boughner*	Educational Reference Library Bureau of Library Services	7-16-69
Dr. Peggy L. Miller	Consultant, ESEA Title III Bureau of Educational Services	8-4-69
ESEA Title I	Coordinators, Bureau of Education Services	8-4-69
Dr. Harry Groulx	Coordinator, ESEA Title III Bureau of Educational Services	various times
Mr. Richard Anderle	Coordinator, ESEA Title III Bureau of Educational Services	various times
Other Persons		
Dr. Lenard Demak*	State-wide Dissemination Project (STADIS)	6-19=69
Mr. Paul Lutzier*	Project STADIS	6-20=69
Dr. Samuel Mengoine	Wayne County ASSIST Center	7-9-69
Mr. Richard Asiala	IMPACT 7 Center Manistee Intermediate School District	7-9-69
Mr. Roger Ross	EPIC Center Calhoun Intermediate School District	7-9-69
Dr. Sanford Glovinsky	Wayne County ASSIST Center	7-19-69
Mr. Thomas Clemens*	Chief, Research Utilization Branch U. S. Office of Education	7-14-69

Mr. Lewis Saks	Supervisor, Audiovisual East Detroit Public Schools	7-16-69
Dr. Gilbert Edson	Superintendent Whitehall Public Schools	7-17-69
Mr. Richard Austin	Director, Federal Projects Muskegon Public Schools	7-17-69
Mr. Jack Carpenter	Superintendent Alpena Intermediate School District	7-18-69
Dr. James House	President, Michigan Association for Supervision and Curriculum Development	7-28-69
Mr. Charles Partridge*	Professional Library Detroit Public Schools	7-29-69
Dr. Ronald Havelock*	Project Director, CRUSK, University of Michigan	7-30-69
Mr. Robert Graham*	School Library Consultant Bureau of School Services, University of Michigan	8-7-69
Mr. James Doyle*	Head of Reference Services University of Detroit	various times

Places Visited

Research and Information Services for Education (RISE) King-of-Prussia Pennsylvania*	7-2-69
Wayne County Intermediate District ASSIST Center*	7-19-69
Regional Special Education Materials Center, Michigan State University*	7-19-69
ERIC Clearinghouse on Teacher Education, Washington, D. C.*	8-25-69
Michigan State Library*	various times
Detroit Public Schools Professional Library*	various times
Detroit Public Schools Curriculum Laboratory*	various times
Association Referral Information Services (ARIS), Ohio Education Association*	previously
Michigan-Ohio Regional Educational Library Information Center*	previously

* Represents sources of expert opinion in the area of information services.

STATE DEPARTMENT OF EDUCATION INFORMATION SYSTEM -- INTERVIEW SCHEDULE

I. Outline and Clarify Task.

  A. Kellogg memo of introduction.

II. Request overview of person's personal and departmental responsibilities.

III. Review the nature of the information to be handled by the information system (knowledge in all forms and formats).

IV. Key questions (recorded with the concurrence of the interviewee).

  A. What types and amounts of information do you or your department require?

  B. What types and amounts of information do you or your department have available?

    1. What is its general value.

    2. List specific sources (unweighted).

  C. From what sources and in what form would you like to have information available?

List a (form)	List b (type)
Citation	Documents and Records
Raw (document, data)	Data
Synthesized (degree?)	Human Resources
Current Awareness	Institutional Resources
	Simulated (projected)

  D. What do you see as the major information needs of educators in the field? How are these needs being satisfied now, in your view?

  E. What programs and/or persons are you aware of that are knowledgeable or have services which appear to satisfy information needs (internal and external) other than those mentioned in B2 above.

V. Next steps to be carried out.

    1. Context analysis (rough) of the answers to the questions posed in IV above.

    2. Construction of a check-list questionnaire to verify the results of the content analysis (one sheet).

3. Compilation and analysis of the questionnaire.
4. Tentative conclusions on needs and resources as expressed in the content analysis and questionnaire results.

Appendix B

Information System Survey; Forms and Results

MICHIGAN STATE DEPARTMENT OF EDUCATION

Information System Survey

The data resulting from completion of this survey will be used to help shape a proposed Michigan State Department of Education Information System. Your cooperation in the completion and return of this checklist would therefore be appreciated. Any additional written and/or personal comments are also solicited.

Please return the completed survey to Dr. George Grimes, Curriculum Division, by Monday, August 4.

Thank you.

A. PERSONAL INFORMATION

1. Name (optional) ____________________

2. Subject and/or administrative area (e.g. Special Education, Title III programs) ____________________

3. Level of Responsibility:

___ Associate or Assistant Superintendent
___ Director
___ Assistant or Associate Director
___ Chief

___ Supervisor
___ Coordinator
___ Consultant
___ Other
____

4. Location of responsibility (express in % if appropriate):

___ In Lansing
___ Other (office) location
___ In the field

5. Length of tenure with the Department (in years) ________

6. Full time teaching/administrative experience outside of the Department (in years)

___ K-6   7-12   ___ Higher Ed.   ___ None

B. TYPES OF INFORMATION USED AND/OR DESIRED IN YOUR WORK

NOTE: For purposes of this survey, information is defined as knowledge in all its forms and formats.

1. Please indicate the present use, availability, and estimate of effectiveness of the following sources of educational information in your situation. Also indicate those information sources which are not presently available but which you feel would have definite value if they were.

For this section only, use a five point (1 high to 5 low) scale in your weighing.

	Use	Availability	Present Effectiveness	Value if Available
a. Books	___	___	___	___
b. Periodicals	___	___	___	___
c. Newsletters	___	___	___	___
d. Curriculum Guides and Manuals	___	___	___	___
e. Services (Croft's, SRA, etc.)	___	___	___	___
f. Conference Proceedings, Yearbooks, etc.	___	___	___	___
g. Handbooks, Directories, etc.	___	___	___	___
h. Dissertations	___	___	___	___
i. Human Resources (Consultants)	___	___	___	___
j. Project Information	___	___	___	___
k. Other ______________________				

2. From what sources do you presently obtain the above resources? Please list the category letters from the above question in front of the appropriate source.

______ State Library (Reference Department)
______ State Library (Cass Branch)
______ Research Coordinating Unit (Voc. Ed.)
______ Bureau of Research
______ Departmental Reference Collection
______ Local Public Library
______ University Library
______ Personal Reference Collection
______ Colleagues
______ Other ______________________
______ Other ______________________
______ Other ______________________

3. Do you feel that you need to be aware of the sources from which information originates as long as it is available in relation to your needs? ___ Yes ___ No

4. Would you like to be kept currently aware of new publications, reports, projects, and other activities in areas which you specify? ___ Yes ___ No

If so, would you prefer receiving this information as:

___ a. A listing of publications and activities
___ b. An abstract of the publications or activities
___ c. The publication itself
___ d. An initial listing of the publications or activities with provision for more information if desired

C. WHAT FORM SHOULD INFORMATION BE AVAILABLE IN?

1. If an information service were available to serve your needs, would you prefer to:

___ a. Have a resource collection directly available?
___ b. Have an information specialist do the necessary searching and material procurement for you?
___ c. Have an information specialist do a preliminary search with the option of obtaining more information or the actual items as you wish?
___ d. Have a staff member in your department do the searching?

2. If you required a synthesis of information in an area, would you prefer to:

___ a. Do such a synthesis yourself?
___ b. Have a member of your staff do the synthesis?
___ c. Have an information specialist do the synthesis?

3. Do you perceive physical proximity to information sources as a necessity for effective utilization? (assuming that adequate mechanisms are available to deliver these needed items with one day's notice) ___ Yes ___ No

D. TYPES OF INFORMATION

1. What particular subject and/or curriculum process areas are of greatest concern to you? ______________________________

____

2. Do you feel that information from education related fields (the liberal arts, science, technology, business, industry, government) would be relevant to your activities? ___ Yes ___ No

3. Would you see a centralized collection of all Department publications as being of value? ___ Yes ___ No

4. What types of information would you like to have from local school districts?

____

5. What types of information do local school districts request of you?

____

____

____

E. ALLIED AREAS

1. What are the main obstacles which you see to the implementation of a departmental information system? ______________________

____

____

2. Do you feel that there is a need for an audiovisual material production capacity within the Department? ___ Yes ___ No

If yes, would you prefer (please check):

___ A do-it-yourself facility?
___ A facility staffed to do the work for you?

3. Do you feel that there is a need for easier access to audiovisual equipment? ___ Yes ___ No; To audiovisual materials? ___ Yes ___ No

4. To what extent do you feel that you are aware of the information resources presently available within the Department? (please check)

Full knowledge ___ Somewhat aware ___ Unaware ___

F. ADDITIONAL COMMENTS AND/OR QUESTIONS WHICH SHOULD BE ASKED

SUB-LIST #1

Section A, Question 2:

Subject and/or administrative area (e.g. Special Education, Title III Programs)

- Accounting
- Adult Education
- Agricultural Education (4)
- Athletics
- Blind and Physically Handicapped
- Educational Professions Development Act
- English and Reading
- Equal Educational Opportunity
- Federal Programs
- Finance
- Financial Aid
- Forms Service
- Guidance
- Health and Physical Education (2)
- Higher Education
- Home Economics (2)
- Library (5)
- Migrant Unit (2)
- Pre-School
- Private Occupational Schools
- Program Evaluation
- Project Follow-through
- Pupil Personnel
- Pupil Transportation and Safety Education
- Outdoor Recreation and Education
- Research (2)
- Research Coordinating Unit
- School Food Service
- School Management
- School Plant Planning
- Section 3 Programs
- Social Security Trust Fund Program
- Special Education (7)
- Transportation Services
- Technical Education
- Title I (8)
- Title II
- Title III (7)

Title VI
Title VIII
Veterans Training (3)
Vocational Education (9)
Vocational Rehabilitation (18)
Workmen's Compensation

List of Added Entries

Section B, Question 2:

From what sources do you presently obtain the above resources? Please list the category letters from the above question in front of the appropriate source.

The entries listed under other were:

Administrators in Field
Association and Regional Committees
Circulated within Department (4)
ERIC
Local Districts
Library of Congress
Local and State Newspapers
Professional Organizations
Publishing Companies (3)
Other State Departments
Purchased Materials with the Department
Friends
Supervisors
State Law Library
Subscriptions
University Curriculum Centers
U. S. Office of Health, Eduation, and Welfare

SUB-LIST #2

Section D, Question 1:

What particular subject and/or curriculum process areas are of greatest concern to you?

Adult Basic Education
Adult Education
Advanced Theory of Research and Evaluation
Afro-American History
Agricultural Education (2)
Behavior of Teachers and Pupils
Bonding for School Buildings
College Admissions and Student Financial Aid
Communications
Community College Programs
Community Service
Compensatory Education (2)
Consumer Education
Corsectional Programs
Correlative Determinants of Educational Outcomes
Current Legislation Affecting Education (summaries)
Developments Having a Relationship to Facilitate Planning
Disadvantaged Students (3)
Driver Education, Motorcycle Education
Early Childhood Education (2)
Education in Michigan and Michigan History, Research in Progress
Educational Administration
Educational Change
Education Curriculum (2)
Educational Research Methods
Educational Systems (2)
Emotionally Disturbed Children - University Programs
Evaluation Methodology
Family Life Education
Federal Fiscal Requirements
Finance (3)
Financial Aids and Personnel Working in High Education
Financial Data
Food Service
Group Dynamics (2)
Guidance Counseling
Health and Physical Education (2)
Higher Education (2)
Home Economics Education for Adults
Home Economics for Wage Earning Trainees

Human Development (2)
Human Relations
Information on Department Programs
Innovations
Integrated Education
Instructional Technology (2)
Language Arts (Counseling)
Learning Theory
Legislative Rules and Regulations
Library Service for the Blind
Management Systems and Training Techniques
Media Centers (3)
Management Information Systems and Techniques
Management Literature
Minority and Ethnic Cultures
Motivation
New and Changing Methods in State and Federal Accounting
Obstacles to Learning
Occupational Information
Occupational Schools
Operant Conditioning
Operational Standards for Private Schools
Political Science (2)
Politics and Education
Pre-school and Elementary Education (2)
Private Trade Schools
Public School Library Consultant Service
Pupil Personnel Service
Pupil Transportation and Highway Safety
Psychology and Social Work
Quality Related to Size of Classrooms
Race Relations
Rehabilitation in all its Forms and Formats
Remedial Moth
Research
Sex Education
School Finance
School Health
Services to Poverty Populations
Social Psychology
Social Studies Personnel
Special Education Curriculum and Materials (2)
Summaries of Educational Events
Systems Analysis
Staff Training and Organizational Development
State and Federal Principles and Practices Related to Vocational Rehabilitation
State News
Teachers Education and Certification
Vocational Rehabilitation (19)

SUB-LIST #3

Section D, Question 4:

What types of information would you like to have from local school districts?

Activities that are achieving Successful Results with Student Teachers
Administration, supervision, and management
Agriculture in Vocational Education (2)
All Data Dealing with Personnel Facilities, Equipment, Community, Parents, Business and Industry
All Data Simular to the Usual M.E.A. Publications Survey
Area Studies Regarding Employment Opportunities
Basic Data on Enrollment Levels and Staffing Measures
Complete Evaluation Reports for Local School Districts
Contact people, resource people
Current Procedures in Federal Grant Regulations
Curriculum Administration Effectiveness
Curriculum Newsletters, Guides, Research Monography, Project Reports (2)
Evaluation Data for Handicapped Youngsters Functioning Out of School
Evidence of Continual Reassessment as to the Extent Which Pre-School is effective
Handicapped Census
Hot Issues
Identification of Children with Special Problems
Information on Placement of Students
Information Regarding Local Programs (4)
Information Regarding Media Centers
Innovative Program Data, Local Needs, and Evaluation Data Relevant to Program Objectives (Home Economics and Occupations) (5)
Management Information (Title IV Program Evaluation)
New and Promising Educational Practices (4)
Newspaper Stories on all Aspects of Home Economics
None (4)
Notification of Publications
Only Such Data as we are Now Assembling (in area of transportation) (2)
Per Pupil Expenditures for Education
Pertaining to Libraries and their Support and Use
Rationale for Allowing Such Incompentents in Classrooms
Scheduling Methods
Special Education Curriculum for Adults and Pre-Adult Handicapped Students (Innovative) (3)
Stories of Special Projects Giving Success Stories of Importance to the Lives of People as Evidenced by Effectiveness
Student Characteristic Data
Student Enrollment Statistics on Post-Secondary Activities of Graduates

Student Population (K-12) with Physical and Mental Disabilities Sent on a Quarterly Basis
Studies, Experimental Projects, Innovations, Elections, Personnel Changes (2)
Successful Practices in Language Classrooms
Techniques Used in Their Areas to Promote Education on Millage
Types of Diagnostic and Vocational Programs
"We get too much now"
We need to Know what Data is Collected and How it can be Obtained.

SUB-LIST #4

Section D, Question 5:

What types of information do local school districts request of you?

Administrative rules
Availability of funds for research and demonstration activity
Communication between and among staff
Cost data or driver education facilities and layout
Current state and federal regulatory information
Curriculum ideas and organization for home economics and family life programs
Descriptive information regarding counseling programs
Detailed information on program procedures (3)
Directions for meeting the requirements for program approval
Effective programs for the disadvantaged child
Exchange of program reports and ideas from other districts
Expenditures made and number of clients served by various program activities
Federal grant resources (2)
Funding procedures, priorities, and curriculum assistance
Financial and information relative to scholarships and grants in higher education
General program implementation laws
Help in locating offices in the Department which can assist others in funding specific information
How to get out of this jam?
How to obtain library service for schools and for individual students who are blind or handicapped
I am supposed to have available any information that is not available locally at the regional unit or college
Information about ESEA Title II and penal fines
Information relative to state sponsored student aid
Instructional materials, curriculum development, program planning, and federal aid for agricultural and vocational education
Interpretation of the school lunch act
Law and policy information relating to running a school system
The law (letter or spirit). How shall we interpret what we see in print? Also where are the resources in this state, human and otherwise?
Legal descriptions for program operations, suggested classroom design, relationship of personnel to each other and responsibilities for instructional programs.
Legislative status of bills (3)
Management information (2)
Many deverse interests
Media program information
No limit -- all facets of Special Education

Physical plant construction
Programs in remedial reading and math
Recommendations on equipment
Statistics -- ideas for program development and implementation
Successful reading and language classes and how to motivate pupils
Supply and demand for teachers
To have data when it is needed (transportation)
Up-to-date program or curriculum information
What other districts are doing
What private schools are licensed

SUB-LIST #5

Section E, Question 1

What are the main obstacles which you see to the implementation of a Departmental information System?

A desire on the part of the administration to make such a tool available to the professional staff
A strong commitment by the Department, it could be staffed poorly
Achieving the necessary degree of collection of needs and functions (2)
Administrations limited concept of what constitutes a first rate information center and services
Assistance in studying school plant needs
The availability of personnel
Awareness and availability
The book cases in every office where publications get buried for a week at a time
Coordination and availability
Convincing the hierarchy that is necessary and then obtaining the staff and equipment necessary to aggresively turn on the idea
Cost (5)
Current multiplicity of locations of Department sub-units
Department is scattered all over the city
Design one first -- implementation could be part of the design
Difficulty in taking time to visit the center
Diffusion of department location
The Department is too widely scattered
Empire building (2)
Funding and staff
Geographical separation of Department
Inability to receive materials requested when needed due to backlog or overload of other's request
It should be a Bureau, not a Department function
Lack of communication due to multiple building occupancy
Lack of information specialists
Lack of room
Lack of personnel
Lack of staff in certain areas qualified to locate and obtain information
Lack of uniformity of need
It just won't happen. Would be considered unnecessary by decision makers
Manpower
Money (7)
Mutual understanding in an organization with little horizontal communication
Needs a persuasive justification of necessity
No centrally located source

No real control or selective distribution based on Bureau or Division Need
Not easily available
The offices are so scattered and the topics so varied
Our information needs are tangental or unrelated to general Department need
Personnel -- effective dissemination (3)
Placing the total Department under one roof and funds for an information staff (4)
Procurement of relevant material and maintaining the system
Proven need for such a system
Space
Time to learn what is available and the exchange of ideas and information
Time to read all the material which currently crosses my desk (screening of materials)
Vast amount of information to be brought under control
We have too many generals already and not enough specialists who can provide local schools with help needed
What information should be given priority and how much information should a consultant of a given area be aware of
Who gets priorities for the collection of what information

MICHIGAN DEPARTMENT OF EDUCATION

Memorandum

TO: Division Secretary

FROM: Dick Anderle

DATE: July 29, 1969

SUBJECT: Information System Survey

Will you please distribute the enclosed questionnaire to all professional people in your administrative unit. I have used the April 1969 State of Michigan telephone directory to determine the number of people in your particular office, unit or division. In the event that additions have been made since then, extra copies are included.

Please return any copies to me that you don't need so that we can determine the number of questionnaires distributed.

Thank you.

The Information System Survey was sent to the following professional people:
Mailed 7-29-69

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Florence Clark - Secretary	23
ADMINISTRATIVE SERVICES BUREAU	
Donna Baker - Secretary	45
SPECIAL EDUCATION	
Betty Fulton (Includes 3 for Driver Educa.) Secretary	18
INTERSCHOLASTIC ATHLETIC DIV	
Allen Bush	1
Vern Norris	1
Lonnie Lawrey	1
MICHIGAN SCHOOL FOR THE BLIND	
Robert Thompson	1
MICHIGAN SCHOOL FOR THE DEAF	
Bruce Siders	1
BUREAU OF HIGHER EDUCATION	
Marian Williams--Secretary	40
BUREAU OF LIBRARY SERVICES	
Francis Scannell's Secretary	35
BUREAU OF RESEARCH	
Agnes Coulson-Secretary	10
DIVISION VOCATIONAL EDUCATION	
Judy Tidwell -- Secretary	40
DIVISION OF VOCATIONAL REHABILITATION	
Nancy Siebert--Secretary	40
BUREAU OF EDUCATIONAL SERVICES	40
TOTAL	296

NOTE:
This material was mailed out by Carolyn Terrill, Mr. Anderle's Secretary.
Each Bureau Secretary was contacted by phone before mailing the questionnaires.

Appendix C

Information Services--A Survey of the History and Present of the Field

(Title page only reproduced here. Document was previously processed into the ERIC system. Must be ordered as separate document: ED 034 560)

MOREL

REGIONAL
INFORMATION
SYSTEM
for educators

Information Services

A Survey of the History and Present Status of the Field

by George Grimes

MICHIGAN-OHIO
REGIONAL
EDUCATIONAL
LABORATORY

3750 Woodward Avenue Detroit, Michigan 48201

Appendix D

Information Transfer and Research Utilization in Education

INFORMATION TRANSFER AND RESEARCH UTILIZATION IN EDUCATION

the edited transcript of an address given by

THOMAS CLEMENS, Chief
Research Utilization Branch
United States Office of Education

before the staff of the

Michigan Department of Education
July 14, 1969

MICHIGAN DEPARTMENT OF EDUCATION
October, 1969

Information Transfer and Research Utilization in Education

Thomas Clemens, Chief, Research Utilization Branch
United States Office of Education

Today I should like to talk with you about four questions. First of all: Why information systems in education?; Why do we need them or why might people want them? Secondly: What comprises an effective educational information system? Third: Where do we now stand with regard to such systems? Fourth: How can we go about improving these systems so that they are usable for educational decision makers and practitioners at all levels?

Perhaps the most used and abused word in education today is innovation. The relationship of information use to innovative programs, I assume, is obvious. It's surprising, however, how many presumably innovative programs around the country in education in the past few years have had no verifiable knowledge base whatsoever. They have been innovations,or inventions, right off the top of the head, growing out of intuition. Such inventions, of course, are fine, but I think that for most of us, and most school districts and state agencies, it is important to make sure that our flash of insight is somehow or other verified against evidence from other sources. So, one area where an information system can make a contribution, is in planning programs to change schools. There are other uses too, however, and I'll try to elaborate on these a little. Let's look at knowledge utilization in two ways: first of all, from the standpoint of information using behavior among educators, and secondly in terms of possible benefits of such use to educational organizations.

From a behavioral standpoint, let's consider what evidence is available about how educators use information, why they ask for it, and, presumably, why they use it. I suppose it comes as no surprise to anyone that one of the most frequent uses of objective, scientific information by decision makers and practitioners in education is to justify what they are already doing. This is something that a lot of people shake their heads over. However, it seems to me that if you're going to justify what you're doing by any means, it is better to do it with information, rather than rhetoric or doctrine or something else of this sort. There are, though, other uses as well. Secondly, every teacher uses information to complete everyday tasks. Insofar as we can provide the teacher needed information, in a systematized and updated way, we can facilitate this completion of day-to-day tasks. Third, we can use it to decide how well we're doing, where we stand. A knowledge base provides the basis for a start on evaluation in education. Fourth, information, by changing our conceptual views of education, can help us to define educational problems/and needs more precisely, more clearly, and more operationally. Of course, it can also facilitate decision making. Clearly, a decision based upon information is something greatly to be desired, although very frequently the knowledge base upon which educational decisions are made is pretty narrow as we all know. Finally, having made a new decision, information systems can help to implement it, through drawing upon the experience gained in other settings. What we can say, then, as to the why of using formal information systems in education is that they can help us to define problems and make decision; to implement decisions; to carry on our every day operations, whether we are changing from previous behavior or not; and, finally, as a basis for evaluation. Now, enough on that; let's talk a little bit about what it is that comprises an effective education information system.

We have a lot less information on effective information systems in education than we might like, but we do have two bodies of literature which can be of benefit in defining requirements of information systems. First of all, there is the so-called diffusion of innovations literature, which is concerned with adoption of new practices and inventions; secondly, we have the literature on information science. Let me draw on some of this literature, and later, as best I can, relate it to conditions and constraints in education, plus what we know about information utilization in education itself.

Everett Rogers of Michigan State University, in his book Diffusion of Innovations, describes the process of adopting innovations as a special kind of decision making. He says that when a person makes a rational decision to adopt something new or different, he goes through a number of stages. You rarely find any of these stages skipped if a decision to change is made. The initial stage (hardly surprising) is awareness that some alternative to current practice exists. Having become aware, a cosmopolite, motivated person will demonstrate interest in the innovation by trying to get more specialized information about the topic. Having had his interest answered with more information, he then engages in a kind of an in-the-head evaluation of whether this new phenomenon relates to him, whether it promises higher rewards than his current practice, the problems he lives with, and so forth. If the answer to this evaluation is favorable, he is likely then to go through a period of trial of the innovation on a limited scale to see whether the innovation does indeed work for him. Another purpose of the trial period is to allow necessary adoptation of the innovation to the local setting. Finally, if the trial is successful, the rational innovator then adopts; e.g., he goes ahead and makes use of the innovation on a continuing operating basis until it's replaced by something better. Now, the interesting thing is that as the person is going through this adoption process, he uses different information sources at every stage in the adoption process. Normally, particularly for the early adoptors, awareness comes from mass-media--from technical reports perhaps, and from the kinds of testamonials about new practices that characterize much writing about education in newspapers and magazines. When he gets to the point where he is interest and wants to know more, the potential adopter is not satisfied with the kind of superficial information found in such testamonials. He now wants materials which interpret what the innovation is about in some detail and the situations in which it has been tried. He very well may not be satisfied with just receiving news clippings or a bibliography, but this is more likely to be true if he is a fairly cosmopolitan person who goes to original information sources. For the less cosmopolite adopter, personal two-way communication with an earlier adopter is more likely to provide the most relevant response to his interest.

When the adopter gets to the valuation stage, he relies heavily on interpersonal communication; he will go to the people who have tried it, who have lived with the problem. As Rogers puts it, during the pre-trial evaluation adopters are more likely to believe people than documents. The result is that in medical, agricultural, and particularly educational settings, there is a heavy reliance on interpersonal communication during the pre-trial evaluation stage. During the trial and adoption stages, we find ever-increasing emphasis on interpersonal contacts and communication. There is some recent evidence, however, that certain kinds of specialized, interpretive material can be of help at this stage in getting people to make whatever is the right decision for them, and in many cases that the right decision is to reject rather than to adopt an innovation. This then is how the diffusion researchers look at the use of information and information sources in making decision to change.

Let's now look at evidence provided us by information scientists, and see how science-oriented practitioners and scientists themselves seek out information. A useful source of information is Herbert Menzel of Columbia University, whose investigations have resulted in one of the seminal articles in the field of information science.[1] In this article he identifies a variety of different approaches to decision making, or to information gathering, by both scientists and technologists. Note that this relates at least to some degree to what was said earlier about how teachers and administrators seek out information. The first pattern is what Menzel calls the _current approach_, in which the information seeker attempts to stay up to date in a field in which he is already competent. The information systems developments, techniques, and products which are responsive to this current approach are called current awareness searches, Selective Dissemination of Information, and a lot of other jargon which we shall not go into at this time. Secondly, Menzel has described what he calls the _everyday approach_. An example is the engineer who doesn't clutter up his mind trying to remember the boiling point of lead under certain conditions, but uses a handbook for this. We might point out, that the teacher also uses this kind of everyday approach, when she looks at the cumulative record of a student at the beginning of the year, or when she attempts to draw on additional sets of information in order to make a decision about how to deal with this class or this particular youngster regarding some instructional or other classroom problem. Again, this process requires a different kind of information from simply the current awareness where you're trying to tap everything coming out as it comes out. Third, there is what Menzel calls the _exhaustive approach_. Here again, a person who is competent in a given area, before starting some new and presumably major project, attempts to find out everything he can that relates to this particular problem in his field. I guess one of the closest examples you'll find of this in education, is somebody writing a proposal for a Title III project, although I am sure that there are other examples of program planning at the school board level and elsewhere. The fourth approach is what he calls the brush-up approach. This is where the individual attempts to collect information in an area where he is not highly knowledgeable. If, for example, you have an information scientist who is trying to learn what to do about an educational information system, he knows information science, but he has to learn very quickly and very efficiently about the problem of what this subculture we call education is in the United States. Again, I think you may infer that the brush-up approach leads to a need for different kinds of information and information products than those required for other purposes. Finally, Menzel describes the browsing approach, in which, on a more or less random basis, one skims through catalogues or indexes of journals, or other sources outside of one's pre-determined field of interest. It is in this area, of course, where big flashes of insight occur sometimes, and where inventive persons see two things fitting together which they never really thought about fitting together before. There is one other thing that I think I ought to point out here, an insight provided by William J. Paisley of Stanford; communication of information occurs in two different dimensions. One is Paisley calls horizontal communication, in which information is communicated at essentially the same level of expertise as that at which it was orginated. Horizontal communication is the kind that occures in professional associations, for example, where two learning psychologists will keep in touch about each others research. They are at the same level of expertise and they are sharing scientific information. The other kind of communiation, which is of particular importance to us here today, is what Paisley calls vertical communication, where information is transmitted from one level of expertise to another, usually from a higher to a lower level. A good example of this would be where the pharmaceutical industry is working with biochemists and others to develop certain kinds of information and guidelines with regard to a new drug, and may communicate this through the physician who is at a lower level of expertise in pharmacology and bio-medical science. The same thing, I think, applies in education, where we have highly structured vertical communication channels. One of the problems in talking about communication in education is that we often assume that the educational scientist/researcher is necessarily more expert than the educational practitioner with regard to any problem related to education. I think we all have seen instances, however, where it would be useful if we could educate the educational psychologist or educational sociologist about what it is really like in the classroom. So we have some kind of need for two-way vertical communication in education.

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[1] Menzel, Herbert. "Types of Information Seeking," _Library Quarterly_, Vol. 34 (1964).

From these points, I would like to suggest that there are a number of generalizations we can draw about information systems. First of all, if an information system is to work, and to be effective and useful for people, it will have to provide a variety of different forms of information. You can't be satisfied with just research reports, or with progress reports or bibliographic listings, or interpretations, alone--you must have a variety of information products. This is true because, first of all, in a complex field like education, there are many different educational roles, and the people in these different roles need different forms of information to perform their jobs. Secondly, even within a given role, the superintendency, for instance, the role incumbent performs not just one, but a number of functions. The superintendent is not just a decision-maker, he performs other managerial functions as well, so he needs different information for different functions he performs. Similarly, the teacher is not always a practitioner, or clinician, but is sometimes a decision maker; she will need different kinds of information for each of the functions she fulfills. Furthermore, each of these people will need different forms of information for different stages in their professional development. If one is at the interest stage in the Rogers paradigm for example, one needs one kind of information, which is certainly different from the information and information formats needed when actually trying out some innovative programs.

Another generalization is that information sources must be extremely accessible to the user. User studies in the information science field have repeatly shown that the first information source used and the most frequently used information source is the one which is closest at hand to the user; and hold on now--even when the user does not think it is very good. Bad information will drive out good information, if good information is inaccessible. Also, as you may have inferred from some of my comments, inter-personal communication is vitally important both for the practice-oriented and the research oriented person. It has been said that, "if you're going to have a computerized information system, the computer terminal had better be warm and walking." People learn more from other people than from objective sources because interpersonal communication permits adoption of the message to the user's prior knowledge and needs in a way that simply scanning documents does not. And finally, there is a phenomenon that some people call user apathy, Paisley calls it user nonchalance, which means that most people simply are not going to try to use information sources unless they are readily accessible. I would suggest--well, I'll talk about user apathy with regard to education a little later--but simply because you have a good information system, doesn't mean that it is going to be used. You're going to have to work aggressively to make sure that people do use verifiable information in making decisions. Let's try to relate this more closely to education. Most of the information science literature grows out of big information systems like the Defense Documentation Center, the NASA Data Bank, and similiar facilities. In those kinds of information systems, there is very clearly a reward system for using information because information can be translated into new inventions and products which mean profits for the people who use the information. Similarly, the physician and the farmer use information, because information means more yield per acre, shorter treatment time, or whatever. Our problem in education, of course, is that our reward system is not clearly related to productivity in the sense that reward systems in other fields are. What is the payoff for doing things differently or better in education? It depends upon the setting, but by and large, I would submit that it is harder to identify relative advantage and payoff with information use in education than in agriculture, medicine, or in industry. Put another way, education has had a fairly limited scientific tradition, our roots are much deeper in the humanistic tradition than in the scientific tradition. Remember, just about 70 years ago the first real educational experiment was run. This was Rice's study on spelling and he was sneered at when he reported that he had tried out two different ways to teach spelling, and it was clear that the kinds could learn more with one method than with the other. The reaction of the educational community was, "whatever made you think that you could decide how well children spell by observing their spelling behavior?" Presumably, disputation or something else was the favored mode of solving educational problems. Some of this is still with us today, although to a lesser degree. If you'd look into some of Philip Jackson's work here in the state of Michigan on value systems and rewards for teachers, you find that teachers just don't trust objective information very much at present. They believe that a testing program, for example, is something that is imposed by somebody else, for the values or benefits unrelated to teachers or pupils. They don't see objective measurement as a tool of use to them; so I would suggest that one of our problems in an educational information system is that our scientific tradition is much more shallowly rooted, and much narrower than some other fields.

Another problem, of course, in trying to use information in education is that we have a very wide range of goals and some of these goals are conflicting. I came from a part of the Midwest where one of the biggest impediments to school district reorganization was that we would lose our basketball teams if we reorganized, despite the face that there were strong cases made that youngsters would learn more in the reorganized school district. I would suggest that in education there is almost excessive reliance on interpersonal communication. Some of the studies done by the Far West Laboratory for Educational Research and Development, and others, have indicated that virtually the only source of information used in some Title III projects by the person writing the proposal has been other people who are trying the same kind of thing. Visitation and inter-personal communication is sometimes used to the exclusion of any documentary or reproducible evidence about a given kind of innovation that a Title III center is trying to implement. Yes, we have information user apathy in education. If user apathy were a disease, there would be two major syndromes in education. The first syndrome is the "Don't confuse me with the facts" syndrome, which characterizes, frequently, the administrator or practitioner who is afraid that if he gets information that goes counter to what he is doing, he'll be expected to change. The other syndrome in this dread disease of information apathy is the, "Please mother, I'd rather do it myself," syndrome.

This second syndrome is frequently found in the innovative educator and certainly in the educational researcher, who would much rather replicate an experiment or demonstration than find out whether it has worked some place else. This phenomenon happens time, after time, after time. If you don't believe it, look in Pacesetters at the number of redundant programs that are going on, even in one state, under Title III, which have already been losers in other places at other times.

What does this all imply so far as the requirements for an educational information system? Let's examine what little evidence we have on use of information in education. The Far West Laboratory for Educational Research and Development ran a survey using both questionnaires and interview of teachers and principals to learn what the respondents wanted from an information service. Remember that this kind of questions is a very difficult thing to ask of a practitioner who has not had access to highly sophisticated information systems. Frequently, what you get from this kind of study is the equivalent of suggestions that the buggy whip be near the gearshift lever. But at the same time, unless you understand what the requirements of the user are, you're not going to be able to design a system which is indeed useful. In rank order, what these people wanted was first of all--information that they could easily get at. That was far and away, the number one requirement. Unless your information system has a close outlet to the user, it's not going to be used. Secondly, they were concerned with currency of information. Clearly, there are many accessible information sources that don't have very much current information. (Remember the yellowed lecture notes from your graduate school days?) The third factor is comprehensiveness. Remember information apathy--somebody who is busy trying to teach kids , or operate a school cannot afford to run to a dozen different information sources, which is all that we can offer today. They must have an outlet from this vast information system that gives them comprehensive coverage so they don't have to go to a number of sources. Fourth, they want rapid answers when they ask a question; you can't have a system which takes a long time to provide the information required. Fifth, they're interested in making sure that the information has been evaluated so there is some sort of verification of its reliability--although this does not necessarily mean scientific reliability. Sixth (notice that this is not nearly as important as some of the others here) they want thorough documentation. They want to know who did it when, where more information is available, and so forth. And finally, they want flexible products and flexible services. If they come and say "I have a headache" and you say "fine, here's Excedrin" O.K. But if they say, "I think my leg is broken" and you staill say "Fine, here's Excedrin," your system is not going to have much credibility or utility to these people. So, again let me suggest that these requirements as stated by teachers and principals, plus what we have learned from the information science field, suggest than an educational information system must provide a range of products related to user needs. I can't stress that enough--unless the information system systematically draws upon the users to find out about user behavior, characteristics, and requirements, it is in trouble. There must be readily accessible services and there must be the possibility of interpersonal communication--the warm and walking computer terminal. Make sure that you maximize, to the degree which your system allows, inter-personal communication because this is the way educators behave.

What would a system look like, then, that would involve all of this? The system can be described in terms of three kinds of factors: its products, its functions, and its services. Products can be divided into two groups: basic and derived. Basic products are forms of information which are acquired and selected in roughly the format in which they'll be disseminated. For example, ERIC has as its basic product documents which are collected and not rewritten. Data systems have data as their basic products. A third kind of basic product is referral material--lists of people and places. These are the three basic products which an information system can provide. These things are basic not only in the sense that they are distributed roughly in the form you acquire them, but also in the sense that they allow you to develop a range of more finished or derived materials. Examples of derived products are access tools which allow you to get into the information system (for example, abstracts and indexes). A bibliography is a derived information product, as are interpretative materials such as state-of-the-art papers, which you may prefer to call information analyses, which we'll discuss a little later.

Now let's consider functions of the system. An information system that's going to serve a wide and heterogenous user population, clearly has to acquire materials. I remember a Hungarian friend of mine once telling me that the first instruction in a family recipe for chicken paprikas-, was "first steal your chicken." Well, that's also true in information systems. The chickens to steal are documents, data, and the names of people and places. But acquisition must be coupled with evaluation. Remember the teachers said they wanted this information documented, evaluated,--I'm sure that most of you have heard in the famour computer acronym GIGO--garbage in garbage out. I would submit that in an information system there is even a more disastrous form of GIGO, garbage in and gospel out. So, unless your documents, unless your input is evaluated to make sure it's not redundant, unless you make sure that it is reliable and valid, you're simply going to be providing misinformation, and you're going to be swamping them with excessive material. Another broad function is the range of technical processing functions--I don't want to belabor this too much, but among the things that an information system has to do is to provide intellectual access through abstracting and indexing maintenance of the files so that it is possible to know where each piece of information is located; and then of course, the search of the file as required is necessary for retrieval of the material. Still another function is that of information analysis, where you attempt to tell people enough so that they do the job properly rather than giving them everything you know. Maybe I can give you an example of this. At the present time, let's assume that we have a superintendent who is either so rational or so demented that he decides he wants to look at evidence of the effectiveness of educational television, before making a decision about whether to have a instructional television program in his schools or not. If he asked of the ERIC Clearinghouse on Media and Technology or some other source, "Tell me what is available about the effectiveness of instructional television?" he'd get 400 separate documents. No matter how rational or how demented that superintendent may be, he can't afford to read 400 documents, and attempt to sift among them before he mades a decision. So, for certain kinds of information functions, you'd better make sure that your information system analyzes information according to user requirements. This doesn't have to be on just a one-to-one basis as demanded. There are ways in which information analysis can have broader utility for many audiences. Basically, there are three kinds of information analysis activities, and they don't necessarily all occur in the same locale. One is what they call the discipline-oriented analysis. That is where you talk about available evidence from the standpoint of psychology or sociology or some other field of academic study. A second kind of information analysis, and one which has a great deal more utility for education in most cases, is the mission oriented analysis, in which you draw together and analyze information according to a consistent viewpoint, from whatever discipline, or fields the original documents may come from and relate it to a real life problem. This is a kind of thing which is done by the Defense Metals Information Analysis Center. Thirdly, there is something we don't now have in education: a type of analysis that I'd guess you'd call a census bureau, in which data, not documents, are collected on very broad phenomena, like oceanography or metallurgy, or space physics. Where these data inputs are manipulated by computers and by other means, in order to try to extrapolate from the data and to generate hypotheses. We don't have these kinds of census bureau information analysis centers in education yet. Until we solve some definitional problems, where one man's creativity is not necessarily another man's neurosis, as it is today, we're going to have trouble getting that kind of information analysis.

Another system function is dissemination, which provides the user access to documents and other system products. The final system function is user services. Let me reiterate once more that an information system that does not relate closely to user requirements and user characteristics will be of little use and is not worth the money required to support it. It is necessary, therefore, that the system receive continuous feedback from the user on how well he's satisfied with the services provided, whether he feels he needs more information, and a variety of other questions. At the present time, we don't have a single educational information system in this country that is based upon user analysis.

There has been a good deal of exhortation this morning about assuring accessibility of information. Well, how do you make it accessible? First of all, you don't leave the poor teacher or principal out there in solitary elegance with his ERIC Thesaurus, copies of Research in Education, and his microfiche reader. You attempt to relate him to the system in a variety of possible ways, of which one excellent example is the ASSIST Center in Wayne County. The system must provide some way of working with the user to find out what it is he really wants, what information is really relevant to his needs. Are there time limits in terms of how fast he has to have it? Are there limits on the time periods from which he wants information from? Does he want it going all the way back to the year one, or does he want it over just the past three years? Are there any limitations on the sources of information so far as he is concerned? And what are the pruposes for which he wants the information? This last question is critical because it influences the relevance of the output for the system. Having "negotiated" the query so that the information requirements of the user are clear to both him and to his contact with the system the representative of the information system formulates a strategy for conducting the search of the information file. After conducting the search, the information specialist screens and analyzes the output from the search. He doesn't conduct this screening in order to eliminate materials, since study after study has indicated that no matter how naive the user is, he is a better judge of the relevance of a given document or bit of information to his needs than the most sophisticated information scientist. So this screening and analysis is intended to point up where there are agreements or conflicts in documents provided. At this point, the information specialist is ready to brief his client on the results of the search. This may be over the telephone, face to face, or in writing to let the client know what has been found and to learn whether there is need for additional searches or for referring the client to other sources. The information specialist should use this briefing as an occasion for getting feedback information from the client. This kind of empirical assessment of the program is essential in order to keep growing with the user, because as clients make use of information systems, they become increasingly sophisticated and if you have a sterotype of the user in your mind the effect is going to be to have a system that stands still while the users are growing.

In short, then, using George Grimes' terms, an educational information system should include a management information system which will involve data, statistics on personnel, facilities, costs and other matters that can be used for planning, for accounting, for evaluation and related purposes. We also need a technical information system (I think we're all a little uncomfortable with that term as George indicated) but it is a system which is essentially based upon knowledge rather than data, not necessarily all quantified, and consisting of research and clinical evidence contained in print and other forms and information allowing referral of the client to other sources. One think that I would like to point out about these two--we sometimes like to talk as if we could, with enough resources, construct a monolithic educational information system in which both data and documents would be thrown into some sort of a hopper and all that we would have to do is push the right button and out would come the right mixture of data and documents. I'm sorry--it isn't so. It isn't even so in the private sector. The president of the Auerbach Corporation, said once, two or three years ago, that neither in American industry nor elsewhere in the world does he know of a single combined data and document computerized system that can be used as a complete management control system. There just isn't such a thing. The state-of-the-art is not yet that far developed. I tried to verify this with Dr. Ed Parker, another very competent information scientist who knows education, and he says today, even today, that he doesn't know of a single merged document and data system which is cost beneficial. So about all you can do at this time is go down two roads with separate data based and document systems and then attempt to get some sort of human interface between them, rather than attempting to throw all your data, and all your documents, into one file and think you're going to get anything out of it. You can see, however, that between these two types of systems we do have the basis for improving educational decision making and educational practices.

Let me state my recurring theme again. In order to have a system that is accessible to the user, and providing a range of products, I would submit that what we need in education in this country is a kind of a multi-level information system. There can be no monolithic system. I think one of the biggest problems we have with regard to ERIC is people believing that the Office of Education sees ERIC as the all-sufficient dissemination instrument, and it can't be that. If ERIC can just be a kind of a scientific memory for education, it becomes a useful indeed, an essential component of multi-level information system. But it can't do the job by itself. And it can't do the job for all users with the kind of products that it can provide. It seems to me that in a multi-level system we must have contact both with the teacher and administrator, through information services like the ASSIST Center, where there can be inter-personal communication and tailoring of information products to the user's requirements, but I would like to stress particularly the importance, of the state education agency in a multi-level information system. Federal funds and systems can accomplish some tasks that could not be handled otherwise. There are local outlets that provide accessible, responsible services that a federal system cannot; but, inbetween is the vital linking role of the state education agency. The state education agency is the natural link, the one between national resources and the local user. Historically, in this country both by tradition and by law, the State education agency has served the role of leadership and advocacy for educational quality. Clearly, this kind of leadership role relates to making sure that the information is provided. Also,through its regulatory functions close the State agency can provide quality control in educational operations. Although the degree to which quality control or regulatory functions are performed varies tremendously from state to state, the state agency is as close to a quality control organization as there is in education at the present time. The state agency also provides another unique function: it provides staff service to both the state legislature and the state executive. Legislative proposals can and do emerge from state education agencies. Presumably, if an information system is available for internal use, it is easier to provide these kinds of staff services more effectively. So our grand design someday will be: federal problems and other non-government national programs to carry on such functions as technical processing of various sorts, some major acquisition programs, and other activities requiring a national effort; the state in an intermediate role; and local user outlets, which may be at an intermediate district level or in large urban areas, at the local district level. Under this kind of system, then, it would be possible to buck any function up as far as possible into the system to have it performed in a cost-beneficial way, and still have effectiveness of performance, for the user down below.

Well, that gets us then through the questions I proposed to discuss an interminable time in the past. Where do we stand? If you look at these products, services, and functions of the state, local, and national level, I guess we're better off in acquisition of documents and providing access to documents than we are in any other area. This, of course, is because you have ERIC, DATRIX, the School Research Information Service, and (I don't know if any of you have seen it) the Current Index to Journals in Education which provides a monthly index of journal literature in areas of interest to educators. But we're very weak on the kinds of clinical information, if I can use that term, that comes out of state education agencies and local school districts. We are not getting that sort of material into ERIC, nor into the School Research

Information Service of Phi Delta Kappa. This is a place where the state can serve as a very useful collection point, to draw out such documents, screen them, and if they have just local utility, keep them in the state. But if they appear to have some utility at a level beyond the state, rather than dealing with them further, put them into ERIC, or School Research Information Service, so that you don't have to waste your time and energy in trying to carry on technical processing that can be done by national components of the system.

What of data? Actually, in many ways we're weaker on data systems than we are on document systems in education. This is true for a variety of reasons, but there are some promising developments, like the Midwest States Education Information Service and the Integrated Educational Information Service (IEIS).

With regard to information analysis, in the past most of this has been done by professional associations and then usually just for their members and nobody else. We are trying to support an information analysis program in the Research Utilization Branch which ends up in products like the PREP Kits which we send out to state agencies. PREP is the acronym for Putting Research into Educational Practice. This one, for example, is a guide for school administrators and broad members on instructional television facilities. It's backed up by a discussion by a highly competent administrator on financial and other considerations in using instructional televison. We have similar kits coming out in the area of reading--there are four on reading programs that are out now. You'll be seeing some others coming out on bilingual programs and a variety of other topics. The contact for the Michigan State Department of Education is Dr. Charles Ruffing. We provide these materials in camera ready copy to the state agency. The reasons we do this is two-fold, first of all, and most important, we want people to look to the state agency as a primary source of information from research. Secondly, because of printing requirements of the

Joint Committee on Printing and Binding, we would have to go through the Government Printing O-fice and all sorts of things to product these in quantities. The result would be that the information would not be available quickly, so we crank them out in this semi-finished form for the state agency, either to reproduce and pass on if they like, or if they would prefer, we'd be delighted to see them, re-package the information to fit unique state requirements and state constraints. If the state agency wants to take the credit for it itself, and forget about the Office, that's o.k., because we're just interested in getting the information used.

Technical processing--well I think the ERIC system provides a useful procedure that can be used at any level, through its use of controled language and so forth.

Client services provide a rather mixed picture. We have just contracted with the Systems Development Corporation to identify what was going on in information in education. They surveyed more than 2,000, educational agencies and they could find only 397 information centers through all the country, only 397 information centers, that met just two criteria. The first criterion was that the center include at least one of the following functions: reference, bibliography compilation, review preparation, abstracting, indexing, loan (either direct or inter-library), literature searching, or referral service. These agencies only had to have one of those services. And so far as holdings (the second criterion) all they had to do was have some books, periodicals, reports, or a significant ERIC collection. Of the 397, only 126 gave anything like comprehensive coverage, covering all the topics of interest to school personnel. Most of the others were curriculum and material centers, Research Coordinating Units for vocational and technical education information, exceptional education information centers, and other special centers which cover almost subject that you can imagine. Of the 397, 317 are Title III projects, 31 are state vocational research coordinating units, and only 13 are state education information agencies. Over 190 of these information systems had a knowledge base of less than one-thousand books, journals, and periodicals, and less than 25 had book collections as big as five thousand items. Less than one-half had any reference volumes at all. So, clearly, we're in great need for state level services in this country if we want people to have information for more rational decision making.

Maybe one other area to talk about is what kinds of developmental efforts are underway. I've mentioned the Far West Lab's efforts. MOREL and what it did with its referral and data system is tremendous. The Ohio Education Association has adopted the MOREL system in order to provide information services to Ohio educators. We currently have a contract in the Office with Auerbach Corporation, to identify alternative models for multi-level information systems, and the project staff will probably be talking to you folks. We've contracted with the Oregon State System of Higher Education to look at whether there is some way we can get a state acquisition program going, and we have just contracted with Stanford Research Institute to develop a study design for a continuing user study to assure that future developments are directed toward the real information needs of educators.

Let's consider briefly what needs to be done to improve information transfer. Clearly, there is a need for increased information analysis and we'll put more money into this in the Office of Education, but we need help from other sources, too. We need reports of current practice to share with educators all over the country and this, of course, is a place for the state agency to become involved. We need a systematic way of providing referral materials. We need more research and development and above all we need more manpower.

I would like to leave you with just these thoughts. It's essential that if there is to be a system that really is usable and can be economically feasible, we had better find some way of making sure that we don't fractionate our information services. There are tendencies, in some states, for vocational/technical to go its way, exceptional education to go its way, and the state agency with the rest of its function to go its own way, and the result is a number of incomplete systems which can't really compete either for money or for people. There is a tremendous manpower shortage. Unless we can find some way to have a centralized state system, feeding specialized competent people in exceptional, vocational and other areas and in turn feeding a local or intermediate level information system to serve the users, I think that you're going to find that the dream of having useful information services in education is nothing but a dream--it will never come about. We must have a state system and we must have more local outlets, if we're going to have a system that works.

Two questions remain to be answered about educational information services: who should take leadership, and when can we expect a usable system to be a reality. Well, I can't answer those questions very well, because who can bring off an educational information system, I think, depends on you folks a great deal more than it does on those of us in Washington. And when, that's up to you, too. I've enjoyed meeting with you. Thank you.

Appendix

Contents of the Visuals Used by Mr. Clemens

NUMBER ONE

WHY. . . . . . . .Information Systems in Education?

WHAT . . . . . . .Comprises an Effective Information System?

WHERE . . . . . .Do We Stand in Educational Information?

HOW. . . . . . . .Do We Improve Educational Information Systems?

NUMBER TWO

EDUCATORS USE INFORMATION TO

. . . . Justify What They Are Doing

. . . . Complete Day-To-Day Tasks

. . . . Assess Current Operations

. . . . Define Their Problems More Clearly

. . . . Facilitate Decision - Making

. . . . Implement New Decisions

NUMBER THREE

THE ADOPTION PROCESS	INFORMATION SOURCES*
Awareness	Mass Media
Interest	Interpretation
Evaluation	Personal Contacts
Trial	(Interpretation & Personal Contacts)
Adoption	

*Overlay

NUMBER FOUR

TYPES OF INFORMATION SEEKING

(Herbert Menzel - Library Quarterly Vol. 34, 1964)

1. Current Approach
2. Everyday Approach
3. Exhaustive Approach
4. Brush-Up Approach
5. Browsing Approach

NUMBER FIVE

TEACHERS AND PRINCIPAL WANT TECHNICAL INFORMATION SERVICES TO PROVIDE:

Rank	Characteristic
1	Easy Access To Information
2	Current Information
3	Comprehensive Coverage
4	Rapid Service
5	Evaluative Review
6	Thorough Documentation
7	Flexibility In Products & Services

NUMBER SIX

COMPONENTS OF INFORMATION SYSTEMS

- Products
  - Basic
  - Derived
- Functions
- Services

NUMBER SEVEN

INFORMATION SYSTEM FUNCTIONS

Acquisition
Evaluation
Technical Processing
. . . . Abstracting
. . . . Indexing
Information Analysis
Document Access
User Services

NUMBER EIGHT

USER SERVICES

Query Negotiation
Formulation of Search Strategy
Screen and Analyze Output
Client Briefing

NUMBER NINE

MANAGEMENT INFORMATION

Statistics on:
- personnel
- facilities
- costs
- etc.

For:
- accounting
- planning
- evaluation
- etc.

TECHNICAL INFORMATION*

Research and 'Clinical' Evidence in:
- reports
- monographs
- articles
- bibliographies

Referral to:
- people
- places
- resources

Advice

PUBLIC INFORMATION**

News Releases

Special Reports

Mass Media

etc.

*Overlay No. 1

**Overlay No. 2

Appendix E

The Content of a Departmental Reference Station

The Departmental Reference Station

As indicated in the main section of the report, the functions of the Departmental Reference Station are:

- REFERENCE SERVICES TO THE DEPARTMENT INCLUDING:
    - REFERENCE SPECIALIST
    - PHONE,DELIVERY, AND TELEFACSIMILE LINK TO THE CENTRAL OFFICE
    - READY REFERENCE COLLECTION
    - COLLECTION OF DEPARTMENTAL PUBLICATIONS
    - INFORMATION FILE ON CRITICAL ISSUES
- COORDINATE DEPARTMENTAL CURRENT AWARENESS SERVICES
- COORDINATE IDENTIFICATION OF HUMAN AND INSTITUTIONAL RESOURCES BY DEPARTMENT STAFF

This appendix shall address itself to the content of the Departmental Reference Station.

Staff -- The staff assumed is:

1 Educational Reference Specialist
1 Secretary
1 Paraprofessional or technician (if the Station engages in any activity regarding audiovisual equipment and/or materials).

Space -- Approximately one standard office would be required (120 square feet) plus adjacent secretarial space.

Location -- As indicated in the main section of the report, the recommended location is in the offices of the Curriculum Division in terms of both central physical location and centrality of Departmental function.

Furniture -- The necessary basic furniture would include:

1 Double pedestal desk and chair
1 Secretarial desk with provision for typewriter storage, and chair

1 Two-door steel supply cabinet
4 Four-drawer legal size file cabinets
4 Three-foot wide by eighty-two inch high book shelves
1 Table (three feet by five feet)
3 Chairs
1 Magazine disply rack

Equipment --

Telephones (with one direct line to the Central Coordinating office)
Telefacsimile facilities (see Appendix C, section dealing with facsimile transmission and bibliography entries 193 and 194)

Services --

Current Awareness (see Appendix H)
Human and Institutional Resources (see Appendix G)
Information File (see Appendix J)

Ready Reference Collection

The following is a listing of the materials necessary for a educational ready reference collection. The list is divided into those items essential for basic operations, and those items which would be desirable if funds permit.

In this listing U. S. Government documents are listed separately unless they fit into another catagory (indexes, magazines, etc). The latter have been placed in the appropriate catagory and noted "(GPO)". Many indexes published by the H. W. Wilson Company are sold on a "service basis" which computes a unique subscription price for each library. The H. W. Wilson Company should be contacted concerning indexes noted "(price arranged)". Many valuable newsletters published by regional educational laboratories, research and development centers, and ERIC Clearinghouses are not listed here. The addresses of these organizations are available in the Standard Education Almanac (annual; Academic Media, Los Angeles; $12.95)

An approximate price for the remaining items (or one year's subscription in the case of serials) is supplied to aid in estimating cost, but for current prices and other order information, the following resources should be consulted:

RESOURCE	USED TO LOCATE
Books in Print. (2 vol., annual) R. R. Bowker Co., 1180 Avenue of the Americas, New York, N. Y. 10036 ($21.85).	books (commercially published)
Educational Resources Information Center, Bureau of Research, U.S. Office of Education, Washington, D. C. 20202.	ERIC materials
Irregular Serials and Annuals. (1st edition, 1967) R. R. Bowker Co., 1180 Avenue of the Americas, New York, N. Y. 10036 ($25.25).	annuals serials (irregular)
Monthly Catalog of U.S. Government Documents. Government Printing Office, Washington, D. C. 20402 ($6.00/yr.).	U.S. government documents
National Directory of Newsletters and Reporting Services. (1st edition, 1966) Gale Research Co., 1400 Book Tower, Detroit Mich. 48226 ($20.00).	newsletters services
Scholarly Books in America. (quarterly) Association of American University Presses, Room 802, 1 Park Avenue, New York, N. Y. 10016 ($1.95/yr.).	
Ulrich's International Periodicals Directory. (2 vol., 12 edition, 1968) R. R. Bowker Co., 1180 Avenue of the Americas, New York, N. Y. 10036 ($30.00 plus supplements).	serials (regular)
Winchell, Constance. *Guide to Reference Books.* (8th edition) American Library Association, 50 East Huron Street, Chicago, Ill. 60611 ($15.00 plus supplements).	reference works

Essential Materials

REFERENCE BOOKS

American Universities & Colleges. $22.00
Books in Print (2 vol.). $21.85
Columbia Encyclopedia (3rd ed.). $49.50
Computer Assisted Instruction Guide. $10.00
Dictionary of Education. $11.95
Directory of Special Libraries and Information Centers. $28.50
Encyclopedia of Associations (Gale). $29.50
Encyclopedia of Educational Research. $27.50
Foundations Directory. $12.00
Guide to Reference Books (Winchell, 8th ed.). $15.00
(supplement). $3.50
Information Please Almanac. $1.65
Irregular Serials and Annuals. $25.25
Lovejoy's College Guide. $3.95
National Directory of Newsletters and Reporting Services. $20.00
National Register of Educational Researchers (Phi Delta Kappan). $20.00
NEA Handbook. $2.00
Programmed Instruction Guide (ENTELEK). $14.50
Research Centers Directory. $39.50
Resources in Educational Research. $6.95
Standard Education Almanac. $12.95
Statesman's Yearbook. $12.50

Subject Guide to Books in Print. $19.25
Ulrich's International Periodicals Directory (12th ed.). $30.00
Webster's Third New International Dictionary. $47.50
World Almanac. $1.75
World of Learning. $25.50

U.S. GOVERNMENT DOCUMENTS

Budget in Brief. $.50
Census of the Population, U.S. Summary (1960). $7.00
Compendium of Federal Education Laws.
Congressional Directory. $3.50
Digest of Educational Statistics. $1.25
Directory of Federal Statistics for Local Areas. $1.00
Directory of Information Resources in the U.S. (4 vol.). $8.00
Education Directory (4 vol.). $6.00
Federal Statistical Directory. $1.00
Health, Education & Welfare Trends. $1.25
Popular Names of U.S. Government Reports. $.30
Projections of Educational Statistics to 1976-77. $1.00
Statistical Abstract of the United States. $4.75
Statistical Services of the U.S. Government. $1.00
Statistics of State School Systems. $.75
U.S. Government Organization Manual. $2.00

SERVICES

College and University Reporter. $455.00
Congressional Quarterly Weekly Report. $120.00
Guide to Federal Assistance for Education. $265.00

INDEXES

Abstracts of Computer Literature (Burrows). free
Abstracts of Instructional Materials for Vocational and Technical Education (ERIC). free
Abstracts of Research Materials for Vocational and Technical Education (ERIC). free
American Book Publishing Record (Bowker). $40.00
Bibliographic Index (Wilson). (price arranged)
Book Review Index (Gale). $39.00
British Education Index. $20.00
Business Education Index. $2.00
Child Development Abstracts & Bibliography. $12.00
Cumulative Book Index. $48.00
Documentation Abstracts.
Education Index (Wilson). (price arranged)
Educational Administration Abstracts. $10.00
Forthcoming Books and Subject Guide to Forthcoming Books. $23.00
Index to Periodical Articles by and about Negroes. $12.00
Library Literature. (price arranged)
Masters' Abstracts. $6.00
Monthly Catalog of U.S. Government Documents (GPO). $6.00
Monthly Checklist of State Publications (GPO). $3.00
New York Times Index. $125.00
Paperbound Books in Print. $23.00
Poverty and Human Resources Abstracts. $40.00
Psychological Abstracts. $30.00
Public Affairs Information Service Bulletin. $100.00
Reader's Guide to Periodical Literature (Wilson). $28.00
Research Grants Index (GPO). $10.00
Scholarly Books in America. $1.95
Social Science & Humanities Index. (price arranged)
Sociology Abstracts. $100.00
State Education Journal Index. $20.00

ERIC

ERIC Microfiche Document Collections:
- Disadvantaged. $230.00
- Higher Education. $115.00
- Pacesetters (annual since 1966). $100.00/yr.
- Manpower (serial). $100.00
- Cooperative Research Reports, 1956-65. $280.00
- Research in Education (monthly). $1,000.00/yr.

ERIC Document Indexes:
- Research in Education (monthly). $21.00
- KWIC Index to the Disadvantaged (Detroit Public Schools). $15.00
- Pacesetters in Innovation (annual since 1966). $2.50
- Research Reports, 1956-65 (2 vol.). $3.75
- Manpower Research Inventory, 1966-67. $2.75
- Thesaurus of ERIC Descriptors (& supplements). $4.50

MAGAZINES AND JOURNALS

American Documentation. $18.50
American Education (GPO). $3.75
American Educational Research Journal. $6.00
Audiovisual Instruction. $6.00
Child Development. $20.00
Childhood Education. $6.00
Children. $1.25
Comparative Education Review. $5.00
Education. $5.50
Education Digest. $5.00
Educational Forum. $5.00
Educational Leadership. $5.50
Educational Products Report (EPIE). $35.00
Educational Theory. $6.00
Elementary School Journal. $6.00
Exceptional Children. $7.00
Harvard Educational Review. $6.00
Journal of Educational Measurement. $7.00
Journal of Educational Psychology. $10.00
Journal of Negro Education. $5.00
Journal of Research and Development in Education. $7.00
Journal of Secondary Education. $5.00
Journal of Teacher Education. $5.00

National Elementary Principal (with membership in Dept. of Elementary School Principals, NEA). $15.00
Nation's Schools. $25.00
NEA Research Bulletin. $2.00
Newsweek. $9.00
Phi Delta Kappan. $5.00
Saturday Review. $8.00
School and Society. $8.75
School Management. $8.00
Theory into Practice. $3.75
Today's Education (NEA Journal) (with NEA membership). $10.00
Urban Education. $5.00
Welfare in Review (GPO). $1.75

NEWSLETTERS

ASCD News Exchange
Cincinnati School Foundation Newsletter. free
Consumer Price Index (national and Detroit). free
Economic Indicators (GPO).
Education News. $10.00
Education Recaps. $3.00
Education USA (NEA). $15.00
Educational Researcher (AERA, NEA). $3.00
NASSP Spotlight (NEA). $2.00
News, Notes and Quotes (PDK). $.50
PACE Report (U. Ky.). free

NEWSPAPERS

Christian Science Monitor. $6.00
New York Times (Sunday edition). $36.00
Wall Street Journal. $25.00

Desirable Materials

REFERENCE BOOKS

Annual Review of Information Service and Technology. $15.00
Audiovisual Equipment Directory. $6.00
Dewey Decimal Classification (17th). $30.00
Dictionary of Foreign Phrases and Abbreviations. $6.00
Familiar Quotations (Bartlett). $15.00
Guide to American Directories. $25.00
Guide to American Educational Directories. $22.50
Handbook of Everyday Law. $6.50
International Handbook of Universities. $16.00
Lovejoy's Guide to Preparatory Schools. $2.95
National Directory of Employment Services. $25.00
Pocket Data Book (biennial, GPO).
Political Handbook and Atlas of the World. $8.50
Popular Guide to Government Publications. $12.00
Subject Headings of the Library of Congress. $15.00
Teachers' Library — How to Organize It. $1.50

SERVICES

Croft Educators Service. (price varies; contact Croft Educational Services, New London, Connecticut)
Automated Education Handbook (Automated Education Center, Detroit Public Schools). $18.00

INDEXES

Applied Science & Technology Index. (price arranged)
Art Index (Wilson). (price arranged)
Bibliographic Survey: The Negro in Print. $7.25
Biological and Agricultural Index. (price arranged)
British Humanities Index. (252 shillings)
Bureau of the Census Catalog (GPO). $2.25
Business Periodicals Index. (price arranged)
Guide to Microforms in Print. $4.00
Index Medicus (GPO). $60.00
Index to Book Reviews in the Humanities. $12.75
Index to Legal Periodicals. (price arranged)
Library and Information Science Abstracts. $10.00
Subject Guide to Children's Magazines. $7.50
Vertical File Index. $8.00

MAGAZINES AND JOURNALS

ALA Bulletin. $6.00
American School & University. $8.00
American School Board Journal. $4.50
American Teacher. $5.00
A-V Communication Review. $6.00
British Journal of Educational Studies. $4.00
Canadian Education and Research Digest. $3.00
Catholic Educational Review. $5.00
Daedalus. $6.50
Educational Administration Quarterly. $5.00
Educational Broadcasting Review. $6.00
Educational Research (British). (23 shillings)
Educational Technology. $10.00
Grade Teacher. $5.50
Harper's. $8.50
History of Education Quarterly. $8.00
International Journal of Religious Education. $5.00
Library Resources and Technical Services. $5.00
North Central Association Quarterly. $4.00
Psychological Review. $10.00
Quarterly Journal of the Library of Congress. $2.50
School Review. $8.00
Social Education. $6.00
Sociology of Education. $7.00
Teachers College Record. $7.50
U.S. News and World Report. $10.00
Wilson Library Bulletin. $5.00

NEWSLETTERS

Administrator's Notebook.	$2.00
Carnegie Quarterly.	free
Echo.	$4.00
Education Abstracts.	$5.00
ERC Reports.	free
Headstart Newsletter (OEO).	free
IAR Research Bulletin.	$2.00
Newsletter (School of Education, Ohio State Univ.).	free
Newsletter (Joint Council on Economic Education).	free
TEPS Newsletter (NEA)	free
Times (London) Educational Supplement.	$10.00

NEWSPAPERS

National Observer.	$10.00
New York Times (& back issues on microfilm).	
Times (London).	$80.00
Washington Post.	$54.00

Appendix F

Technical Procedures--The Searching Process

(Title page only reproduced here. Document was previously processed into the ERIC system. Must be ordered as separate document: ED 034 55

MOREL

REGIONAL
INFORMATION
SYSTEM
for educators

Information Resources

A Searcher's Manual

by George Grimes & James Doyle

MICHIGAN-OHIO
REGIONAL
EDUCATIONAL
LABORATORY

3750 Woodward Avenue   Detroit, Michigan 48201

Appendix G

Technical Procedures--The Human and Institutional Resource Bank

(Title page only reproduced here. This document was previously processed into the ERIC system. Must be ordered as separate document: ED 034 561)

MOREL

REGIONAL INFORMATION SYSTEM for educators

Establishing the Information System:

An Operational Handbook

by Charles Kromer & James Doyle

MICHIGAN-OHIO
REGIONAL
EDUCATIONAL
LABORATORY

3750 Woodward Avenue Detroit, Michigan 48201

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Appendix H

Technical Procedures--Current Awareness

Current Awareness

Current Awareness can be as simple as routing newsletters, books and reports to persons who might be interested in them. In essence it is the reverse of normal library procedure where the information comes to the user rather than the user seeking it.

The most fully developed current awareness technique is Selective Dissemination of Information (SDI) (see below). Another approach to awareness of periodical literature is the "contents" service where the tables of contents of key periodicals are photocopied and circulated to various locations. A person at one of these locations wishing a particular article puts his initials on the table of contents next to the desired article. The table of contents is then returned and a photocopy of the entire article is sent to the requester. This procedure is somewhat limited due to the large volume of photocopying involved.

Another current awareness method is the announcement service. In addition to their retrospective literature searching capacity, indexing and abstracting tools can be used to "alert to the existence of a document, to select from the literature, to provide the user with some comprehension or retention of the abstracted materials ...." (174). Another aspect of an announcement service could be to make educators aware of new inclusions in a Resource Bank. As new persons or agencies are added to the Bank those who had expressed an interest in their area of specialization could be made aware of the existence of the resource.

Selective Dissemination of Information

Selective Dissemination of Information (SDI) was first developed by H. P. Luhn of the IBM Advanced Systems Group in the late fifties. SDI, as a "current awareness" procedure, provides selected materials from current literature to individuals based upon their interests. The key to the system is the creation of "profiles" which characterize the content of an article or document and the user. Each profile is made up from characteristic terms or "keywords" selected on the one hand from the language of the document, and on the other hand from the specialized vocabulary of the user. Profiles are compared, the keywords serving as a common denominator, allowing documents to be sent to those people whose list of keywords sufficiently match the list of document keywords.

So that the users will not have to be burdened with the full text of the documents which are in their general area of interest, but which they do not want to read fully, only abstracts are sent to the users initially. A feedback procedures is built into the system so that users may inform the SDI service that (1) the information was of interest to him and served to keep him sufficiently informed, (2) the information was of interest to him, and he would like the complete text, or (3) the information was of no interest to him. This feedback allows the recipient's profile to be modified.

Because of the vast number of documents and recipient keywords which have to be matched in an SDI system, mechanization is necessary, "Since mechanization is essential, it follows that machinable records. . . must be used. A typical set of machinable records describing a document consists of IBM cards for author, title, source, keyword and abstract" (177). The profile for a given recipient is a list of his interests which are determined initially by having each potential recipient submit a list of topics pertinent to his area of activity which are checked against a keyword dictionary. "The document profiles and the recipient profiles are read into a computer and compared. In those cases where enough keywords match, the machine notes the name and address of the recipient and the identification code of the document selected for him, whereupon an information card and an address-response card are sent to him" (177, p.7). The SDI procedure is really the reverse of the normal library procedure in that the information seeks the user rather than the user seeking the information.

An example of an operating SDI system is the installation at the Bonniville Power Administration. An explanation of this program states that:

> A team of specialists follow the literature carefully, abstract, and index according to keywords found in a thesaurus (a kind of dictionary) created at the Bureau of Reclamation. Each participating engineer has a profile--a verbal description of his interests--using words taken from the thesaurus. When the two are matched in a computer, an abstract card is sent to the subscriber (158, p. 589).

This system is very much like the original IBM model, but one major function has been added, that of retrospective searching when needed as well as weighting of keywords so that abstracts are sent out only when a combination of keywords weights reaches a significant "hit" level, thus eliminating those documents of low relevance.

An example of the application of the SDI approach to higher education can be found in the system operated at Wayne State University for a number of universities across the United States.

Appendix I

Technical Procedures--Repackaging and Synthesis of Information

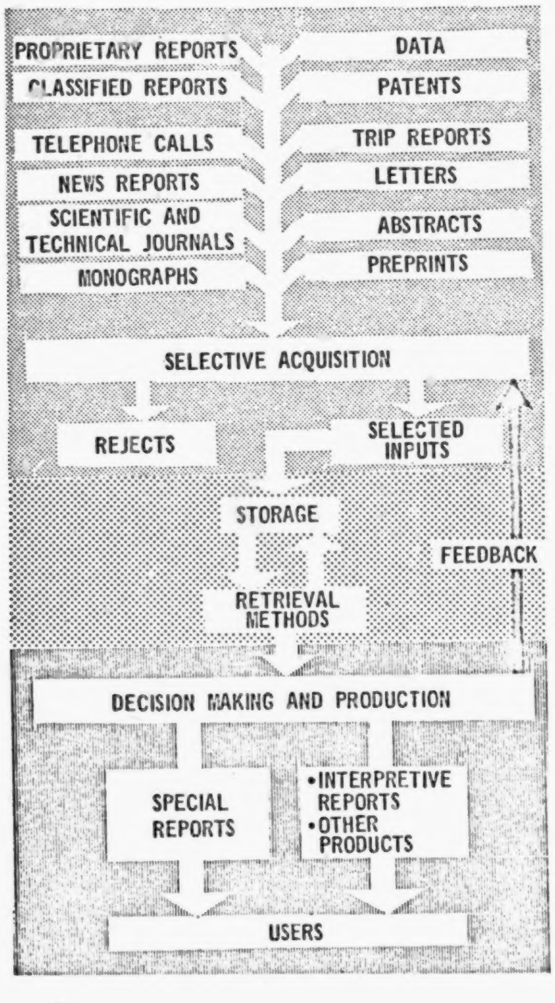
One of the reoccuring points made by several of the information centers and libraries visted by the Project investigator (RISE Center, ASSIST Center, State Library Reference Division) was the redundancy of a large percentage of the questions that they received. In all cases where an estimate of this "redundancy ratio" was requested, the figure given was 80%. In other words, eighty percent of all questions coming into the three key centers surveyed had been asked on at least one previous occassion. The implications of this factor are significant. Specifically:

1. The economy of the information system increases as it matures because of a reduced need to perform a basic search on redundant topics. Attention must be given to updating and weeding, of course, as each question is asked anew, but the basic work-up need not be repeated.
2. An information file, which is directly responsive to user needs, can be built by basing it on questions received (see Appendix J for further comment on this topic).
3. Information in areas of very high redundancy and demand can be viewed as prime ones for state-of-the-art and other information repackaging processes.

The organizational unit which has performed the most extensive activities in the information analysis and reformulation area is the analytical information center.

One of the most highly developed of the information analysis centers is the Defense Metals Information Center of the Battelle Memorial Institute. Mr. Ralph L. Darby, Chief of the Information Operations Division of Battelle offered an analysis of the information analysis center in a paper presented at the Workshop on Report Literature and Sources of Information sponsored by the New Jersey Chapter of the Special Libraries Association on April 5, 1967. Mr. Darby depicted the analysis center's organization through the following diagram:*

THE ORGANIZATION OF AN INFORMATION
ANALYSIS CENTER


PROPRIETARY REPORTS
DATA
CLASSIFIED REPORTS
PATENTS
TELEPHONE CALLS
TRIP REPORTS
NEWS REPORTS
LETTERS
SCIENTIFIC AND TECHNICAL JOURNALS
ABSTRACTS
MONOGRAPHS
PREPRINTS
SELECTIVE ACQUISITION
REJECTS
SELECTED INPUTS
STORAGE
FEEDBACK
RETRIEVAL METHODS
DECISION MAKING AND PRODUCTION
SPECIAL REPORTS
•INTERPRETIVE REPORTS
•OTHER PRODUCTS
USERS

The differentiating factor between an analysis center and a library or regular information center is shown by the bottom portion of the figure. Here,

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*Ralph L. Darby, "Information Analysis Centers as a Source of Information and Data," *Special Libraries*, LIX (February, 1968), p. 93.

instead of bibliographies, abstracts, and indexes, the main products of the analysis center are technical answers to inquiries, data computations, monographs, and state-of-the-art reports.

In the case of the Defense Metals Information Center, its mission is to collect, process and disseminate scientific and technical information on structural metals and closely related aerospace materials. The center has a manager, approximately one hundred and forty-five engineers (each a specialist) who participate part time to answer inquiries or prepare special reports, and eight full-time information specialists who operate the system and assist the inquirer and discuss the details of the question. This arrangement (1) lets the inquirer know that his problem is receiving attention, and (2) delimits and further defines the need. The center answers questions, publishes reviews or recent developments, and issues technical memoranda and state-of-the-art and evaluative reports on particular subject areas.

Analysis and Reformulation

In the previous discussion of analytical information centers, it was pointed out that the main product of the analysis centers are technical answers to inquiries, data compilations, monographs and state-of-the-art reports. In this same area one of the conclusions of the Far West Laboratory for Educational Research and Development's Educational R & D Information System Requirements: A Task Force Report is that:

> . . . existing systems appear to be reasonable adequate in terms of the functional requirements of processing, filing, and storage. However, two areas, indexing and reformulation, exhibit significant weakness. . .
>
> The term "reformulation" means the process of operating on source documents, such as reports, interpretive summaries, handbooks, and guides in order to meet the needs of school personnel).

Furthermore:

> There is a clear need to acquire information on local projects. Obviously, a national system is not appropriate for dealing with local materials which may have, at best, regional interest. . .
>
> The state department of education could. . . execute this function if the information capabilities of its various divisions could be centralized. Collection and dissemination might also be performed by the regional laboratories (138, p. 43).

The process of analysis and reformulation as applied to local materials would seem to be a fruitful area for State-wide information system involvement. It would also probably be the most expensive system activity in terms of time and cost and would therefore involve a decision as to cost effectiveness installation potential prior to large scale involvement.

Appendix J

Technical Procedures--The Information File and Special Collections

As pointed out in Appendix I, approximately 80% of all questions asked in three key information centers were repeated ones. This phonomon of high redundancy of questions leads to a relatively easy and meaningful procedure for building one of the key components of an educational reference collection--the information file. The information file, in essence, is a plcce where information on a topic which has been adjudged of importance has been gathered from all significant sources. The organization of this information may be through citation lists which lead to the actual documents and persons, or copies of the actual documents themselves. When a basic resource search is conducted the first time that a question is asked, a copy of the search results can be placed in the information file. Subsequent questions on the same topic can take advantage of this first search, select from it, and add ot it. A self-perpetuating information file, that is in tune with user needs, is therefore created and carried forward. An example of the contents of one such file is given below.

Other special collections which might be created and maintained could include:

Textbooks
Curriculum Manuals and Handbooks
Curriculum Guides
Units of Study
Lesson Plans
Local School System Documents
Standardized Tests
Resource Catalogs and Materials
Programmed Materials
Publishers Catalogs

APPENDIX J

Annotated List of Selected Collections of Materials in the MOREL Information Center's Information File

Introduction

The following is a selected and briefly annotated list of subject descriptors which represent the significant collections of materials in the information file of the MOREL Information Center. These collections were developed gradually, as a specific need arose for such materials, in replying to the internal and external requests for information received by the Information Center. Therefore, no claims are made that the list is exhaustive or that the collections are more extensive than is necessary to serve the immediate needs of the Information Center.

The descriptors were taken, for the most part, from the *Thesuraus of ERIC Descriptors* (1967), published by the Educational Resources Information Center, Bureau of Research, U. S. Office of Education.

Administration

Collection of general articles on administration, leadership, principalship, departmental chairman, etc. An internally produced bibliography and several externally acquired bibliographies.

Attitudes, Measurement

A small collection of scholarly articles on attitude measurement, both general and for various specific phases of educational research.

Attitudes, Teacher

Several articles and an externally acquired bibliography, as well as several ERIC abstracts.

Behavioral Objectives

Contains two bibliographies, an internally produced one and one external. Several articles on the principles of behavioral objectives are there, as well as a few ERIC abstracts.

Class Management

This collection includes an internally produced bibliography as well as several articles on the subject.

Community Control of Schools

Included is a copy of the New York City decentralization plan, as well as internally produced bibliography and a considerable collection of ERIC abstracts. Various articles are also included.

Computer-Assisted Instruction

An extensive collection of articles, both practical and scholarly, and a good collection of ERIC abstracts. Some literature describing computer hardware is available, as well as an internally produced bibliography.

Copyright

Various articles, guidelines, etc., on copyright and an outline of plagiarism. A pamphlet on copyright and educators.

Core Curriculum

An internally produced bibliography and one obtained externally, as well as a good collection of articles.

Creative Thinking

An extensive collection of materials includes many scholarly articles and two internally produced bibliographies.

Delinquency, Juvenile

Included are one externally acquired bibliography and a collection of various current articles.

Disadvantaged

An extensive collection of materials, including two internally produced bibliographies and three externally acquired ones. There are also hundreds of ERIC abstracts and a great deal of scholarly articles.

Discovery Processes

Two internally produced bibliographies and an extensive collection of articles on discovery, induction, deduction, etc. are available.

Feedback, Student

Included are a lengthy internally produced bibliography and a good supply of articles, both practical and scholarly.

Financial Support

A collection of several articles and one internally produced bibliography.

Flexible Scheduling

Included are one externally acquired bibliography, an internally produced list of institutional resources, and a small collection of articles.

Higher Education Act of 1965 (89-329)

A bibliography, internally produced, and a small group of articles and announcements constitute the bulk of this collection.

Independent Study

A small collection of articles, both practical and scholarly, as well as an internally produced bibliography are included.

Individual Instruction

One bibliography, externally acquired, and several articles are available.

Information Science

One internally produced bibliography, as well as three externally acquired ones, are available. A good collection of articles and ERIC abstracts are included.

Education Professions Development Act of 1967 (90-35)

Included are a list of the Michigan and Ohio administrators as of summer 1968, several articles descriptive of the law, and a small collection of general articles.

Educational Facilities

One externally acquired bibliography and several articles on facilities, educational parks, etc.

Educational Media

The collection contains an internally produced bibliography, several ERIC abstracts, and several general articles.

Educational Technology

Several general articles and one externally produced bibliography are available.

Elementary and Secondary Education Act of 1965 (89-10)

A lengthy internal bibliography and several articles, both on the act in general and on its various titles.

Environmental Influences

A small collection of scholarly articles, and a group of ERIC abstracts.

Evaluation

Four externally acquired bibliographies and several articles and ERIC abstracts, as well as a document called "guidelines for the evaluation of teaching."

Inservice Teacher Education

An extensive collection of materials that includes the following: an internally produced bibliography, various research reports, and an extensive collection of articles, both popular and scholarly.

Instructional Materials Center

One internally produced bibliography and two externally acquired ones complement a good collection of articles, descriptive sheets, and transparency masters.

Integration Methods

A large collection of articles, mostly scholarly, and one internally produced bibliography.

Interaction Analysis

A small collection of current articles, mostly scholarly, complement a collection of ERIC abstracts and one lengthy produced bibliography.

Listening

A large collection of scholarly articles is supplemented by an internally produced bibliography and a collection of abstracts, mostly ERIC.

Mathematics Education

An extensive collection of materials, including two short internally produced bibliographies, several project resource lists, a small collection of ERIC abstracts, and a large collection of scholarly articles.

Microteaching

One externally acquired bibliography and several ERIC abstracts and print-outs are included, as well as an extensive collection of practical and scholarly articles.

Middle Schools

This large collection includes: two internally produced bibliographies, one large externally acquired bibliography, agency resource lists, ERIC and other abstracts, a packet of materials from the University of Toledo, and a large collection of articles (many scholarly).

Motivation

A very extensive collection of scholarly articles is complemented by two internally produced bibliographies, and externally acquired one, the reply to a DATRIX search, and several ERIC abstracts.

Negotiations, Contract

A small collection includes several articles and one internally produced bibliography.

Negro Education

A good collection of scholarly articles and several ERIC abstracts are supplemented by a lengthy externally acquired bibliography.

Nongraded System

This collection included one externally acquired bibliography, several internally produced agency resource lists, an NEA research memo with bibliography, and a good collection of articles, ERIC abstracts, pamphlets, etc.

Personnel Selection

Four externally acquired bibliographies on various aspects of personnel selection are available, as well as, a small collection of articles.

PERT (Program Evaluation Review Technique)

A good collection of scholarly articles as well as practical ones, pamphlets, etc.

Physical Education

One internally produced bibliography and two externally acquired ones, a good collection of ERIC abstracts, and various articles, papers and announcements are available.

Problem Solving

A medium sized collection of articles on several aspects of problem solving.

Foundations
Gradings
History and Philosophy of Education
Humanities
Initial Teaching Alphabet
Interviews
Legislation, educational
Model cities program
MOREL (general)
National Defense Education Act of 1958 (85-864)
National Foundation on the Arts and Humanities Act of 1965 (89-209)
Organic curriculum
Perception
Privacy, invasion of
Questioning and discussion
Reinforcement
Research and Development Centers
Rewards
Science education
Self evaluation, teacher
Sensitivity training
Social characteristics
Special education
Student participation
Student teaching
Transportation
Urban Education
Vocational Education Act of 1963 (88-210)
Vocational Schools
Writing

Programming Planning Budgeting System (PPBS)

In addition to a small collection of articles, there are three externally acquired bibliographies, a set of booklets from George Washington University, and some ERIC abstracts.

Racial Attitudes

An extensive collection, including two internally produced bibliographies, one listing articles and one listing attitude measurement instruments. There is also one externally acquired bibliography.

Reading

This collection consists of three externally acquired bibliographies, along with several ERIC abstracts, book reviews, etc.

Regional Educational Laboratories

In addition to an extensive list of general articles about the theory development and operation of the laboratories, there are critical reviews and papers, laboratory guidelines, news releases, and various laboratory directories and program critiques.

School Study Councils

This collection contains general articles, descriptive literature, various SSC proposals, evaluative materials, and a list of SSC's.

School Year, Length

Extensive collection of articles, papers, reprints, etc., most of them from the School Calendar Study Committee and local school systems. These are also, two externally acquired bibliographies and one internally prepared, and NEA research memo with bibliography, and some ERIC materials.

Self Concept

Four externally acquired bibliographies and one internally produced one constitute the bulk of this collection which also includes some ERIC abstracts.

Sex Education

Included are two externally acquired bibliographies and a small collection of articles and booklets.

Simulation

Three externally acquired bibliographies and one internally produced one, in addition to the results of a DATRIX search, a pile of ERIC abstracts, and a good collection of articles constitute this collection.

Small Group Instruction

A good collection of articles is complemented by an internally produced bibliography.

Student Response Systems

Quite a few articles, both practical and scholarly, are the basis of a collection that includes booklets, lists of salesmen, and literature on various types of hardware.

Study Skills

An internally prepared bibliography and a list of study materials supplement an internally prepared bibliography.

Supervision

A large collection of scholarly articles on supervision and the supervisor are available, in addition to an externally acquired bibliography.

Systems Approach

A large collection of scholarly articles and papers are available, in addition to one internally produced and three externally acquired bibliographies, a structured DATRIX search, and several resource lists.

Teacher Aides

Several articles and descriptive sheets on teacher aides and para-professionals are supplemented by two bibliographies, one external and one internal.

Team Teaching

A list of resources and an externally acquired bibliography are the basis of a collection which also includes a large number of articles, a packet from Lamphere (Michigan) Public Schools, and some ERIC materials.

Work Attitudes

A fairly large collection of scholarly articles on work attitudes, work-study aspirations, central life interests, etc.

In addition to the above descriptors, which represent the significant areas of our searches to date, we have also had more limited needs in the areas listed below. Again, the terms are selected from the *Thesaurus of ERIC Descriptors*. Presently, these minor collections house fragmentary references located thus far and are not considered to be major resources.

Attitudes, student
Behavior
Behavior, non-verbal
Change Agents
Civil Rights Act of 1964 (88-352)
Class size
College, junior
Communication
Compensatory Education
Congress, U.S.
Counseling
Dialect
Discipline
Dropouts
Economic Opportunity Act of 1964 (88-452)
Educational television
English education
ERIC
Feedback, teacher peer group
Foreign Language Education

Appendix K

Installation and Evaluation of a Regional Information System

MOREL

REGIONAL INFORMATION SYSTEM
for educators

Installation & Evaluation

by Charles Kromer

MICHIGAN-OHIO
REGIONAL
EDUCATIONAL
LABORATORY

3750 Woodward Avenue Detroit, Michigan 48201

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Documentation of Installation

Background

The Michigan-Ohio Regional Educational Laboratory (MOREL) was established as an agency to develop and test alternatives to current educational practice. One of 20 regional laboratories operating under Title IV of ESEA, MOREL undertook, among other programs, the development of an information system designed to meet the needs of educators in the region. The MOREL Regional Information System (RIS) provides referrals to people, projects, and programs as well as to printed materials. Its intent is to provide one-stop information service.

Details on the operation of the system may be found in a companion publication, *Establishing the Information System — An Operational Handbook.*

The development of the MOREL RIS progressed to the stage of successful field testing during the summer of 1968. At this point, attention was directed to the possibilities of installations within the region. During the development and field testing phase, potential installation sites were identified with some basic groundwork carried out to determine those which might be most appropriate. A principal criterion for installation was the determination of the ability and interest of an institution in providing the necessary manpower, resources, and attention to the operation of the RIS to assure an effective, long-lasting contribution to education.

This document details the selection and installation procedures used in the installation of the MOREL Regional Information System in the Ohio Education Association (OEA). The chronology highlights the activities of both parties in the installation. Although the formal installation period might be considered as being from September 12, 1968, through February 17, 1969, activities which led to the installation agreement are reviewed as well.

Activities

April 25, 1968

Presentation of MOREL's RIS

Charles Kromer of MOREL met with Charles R. Hilston, Byron Marlowe, and Sandra B. Damico of the OEA in Columbus, Ohio, to review the MOREL RIS development. Emphasis was placed on familiarizing the OEA with our program and soliciting their assistance in the identification and collection of exemplary resources. Two significant points resulted from this initial meeting:

A. Awareness on the part of MOREL of the OEA focused on the valuation of innovative programs in Ohio schools.

B. Expressed willingness on the part of OEA to participate with MOREL in its continuing development and an indication of future interest as an installation site for the RIS.

May 9, 1968

OEA Invites MOREL to Discuss its Program

The Ohio Secondary School Principals, a department of OEA, invited Charles Kromer to present the "MOREL Information Story" at their summer workshop in Columbus. This presentation to roughly 300 principals was held on June 25-27, 1968.

June 17, 1968

MOREL Steps Up Ohio Activities

Frank Halley, MOREL summer field representative, and Charles Kromer met with Byron Marlowe in Columbus to review MOREL summer activities in Ohio and to involve the OEA in resource identification and collection.

Summer, 1968

Ohio Summer Activities

Close contact was maintained by Frank Halley and and Charles Kromer with Byron Marlowe of the OEA, receiving and reviewing suggested programs, projects, and personnel referrals appropriate for the information center. During this time the OEA was finalizing their Frontier Program and again indicated interest in becoming involved with an ongoing activity which would support the initial Frontier Program.

August 14, 1968
OEA Meets with MOREL

Richard Hindman, Director of Research, along with Byron Marlowe and Sandra Damico of the Research Division of the OEA, came to Detroit to discuss the OEA's interest in acquiring the MOREL RIS for Ohio. The OEA recognized the need for providing information of an innovative or exemplary nature to educators of the state, having been involved with the Frontier Program during the past year to address this concern. They saw the MOREL RIS as a natural follow-up to these activities and felt the RIS would complement present services of the association.

The significant result of this meeting was a commitment by Richard Hindman to discuss the program, its costs and personnel requirements, with Dr. Staynor Brighton, Executive Secretary of the OEA.

August 21, 1968
OEA Officially Requests Installation

Staynor Brighton communicated with Dr. Stuart C. Rankin, Executive Director of MOREL, expressing interest in acquiring the MOREL RIS for the OEA. He proposes a meeting in Ohio in early September to develop an installation agreement and installation procedures.

September 12, 1968
MOREL Meets with the OEA

Stuart C. Rankin, William Young, George Grimes, and Charles Kromer met with the OEA in Columbus to discuss a proposed installation agreement. General agreement was reached and directions for completing an installation schedule were given. Formal acceptance by the respective governing boards of MOREL and the OEA would be sought at their next meeting. Plans for a joint news release were made.

October 7-8, 1968
Establishment of an Installation Schedule

Richard Hindman of the OEA came to Detroit to finalize the installation schedule with Charles Kromer of MOREL. Ada Jean Lowe, librarian with the OEA, met in Detroit with James Doyle and Leo Pickett, MOREL librarians, to review the nature of the library component of the MOREL RIS.

October 10, 1968
Adaptation of the RIS Emerges

Byron Marlowe proposed new equipment, Access 60, as an alternative to the McBee equipment used by MOREL. Mutual investigation by MOREL and the OEA was undertaken immediately to determine the feasibility of this equipment in the system.

October 11, 1968
MOREL Board Grants Approval

Stuart C. Rankin indicated to Staynor Brighton that the MOREL Board of Directors were pleased about the proposed installation and requested formal acceptance of the agreement by the OEA.

October 15-16, 1968
Acceptance of Access 60 Retrieval System

Byron Marlowe met in Detroit to review the potential of the proposed Access 60 equipment. Mutual agreement on this equipment was made by Byron Marlowe and Charles Kromer and initiation of the development of a coding scheme compatible with this equipment was undertaken. Byron Marlowe assumed the responsibility for the coding scheme development with review and support provided by Charles Kromer.

October 23, 1968
OEA Formally Accepts Installation Agreement

Staynor Brighton confirmed in a letter to Stuart C. Rankin the acceptance of the installation agreement by the OEA Executive Committee.

November 1, 1968
Preliminary Approval of Coding Scheme

Byron Marlowe and Charles Kromer met in Bowling Green, Ohio, to review the proposed coding scheme. Concurrence was reached on the format, descriptors, and numerical code.

November, 1968
Installation Transition Activities

MOREL made available to the OEA all forms, cover letters, and procedures utilized in the operation of the MOREL RIS. The OEA spent this time reviewing these and converting them to their own needs. Printing of the finalized forms, letters, and procedures was scheduled for December and January.

December 19, 1968
Training for OEA Personnel

Charles Kromer, James Doyle, and Leo Pickett went to Columbus to work with the personnel responsible for operating the OEA Information Center. Charles Kromer met with the Field staff of the OEA to review with them their responsibilities in identifying and collecting resources. Areas such as sources, quality, needs, etc. were covered.

James Doyle and Leo Pickett met with Ada Jean Lowe to review the progress being made in establishing the library component of the OEA Information Center. Emphasis was placed on library content, facilities, and staff.

January 6, 1969
Printing Completed

The OEA sent copies of forms, letters, and coding schemes to MOREL.

January 8, 1969
Preliminary Evaluation of Installation to Date

MOREL issued a progress report on the installation. Specific points were made with general agreement that the installation was progressing on schedule.

January 28, 1969
MOREL Notifies Ohio Resources

MOREL contacted all previously identified resources in Ohio which had been collected for the MOREL RIS and informed them of the transfer of their activities to the OEA. Each resource was supplied with OEA data forms and coding scheme to facilitate their transferring to the OEA Information Center.

January, 1969
OEA Seeks Resources

An initial mass mailing was made to educators in Ohio, explaining the operation of the OEA's Information System titled "Association Referral Information Service". (ARIS). At the same time, each educator was asked to suggest exemplary people and programs familiar to them.

February, 1969
Completion of Transfer

MOREL sent files containing information on resources in Ohio identified by MOREL to the OEA. In addition, selected articles, abstracts, and bibliographies were sent for inclusion in the library component of the ARIS.

February 17, 1969
Installation Completed — Service Begins

The OEA had identified and compiled roughly 2000 resources from the state of Ohio. Through public relations efforts, service was announced and requests were processed from educators throughout the state. Requests received by MOREL from Ohio were referred to the OEA for processing.

Installation Costs & Staff Requirements

Certain questions relating to costs may have come to mind during the review of the activities involved in installing the RIS.

Initially it should be made clear that there is no direct cost or purchase involved in obtaining the right to use the RIS. Having been developed with federal funds for the purpose of providing tested alternatives to current educational practice, the developed models are available at no cost. Should any equipment, materials, manpower, or facilities be required, this cost will be borne by the institution serving as the installation. MOREL, having developed the RIS, provided consultant services at no cost to the acquiring institution. MOREL assumed any transportation, food, and lodging costs incurred during the installation phase. Likewise the OEA bore the expenses of sending any of their personnel to MOREL during the installation phase. In addition, the OEA assumed the cost of obtaining the Access 60 equipment and additional expenses incurred in the revision and adaptation of the MOREL forms and procedures to their own system.

It has not been the intent of this document to present precise details or cost factors as might be related to the installation of the MOREL RIS in the OEA. Rather, our intent is to provide an overall frame of reference so that anyone interested in obtaining a basic understanding of the installation procedure could do so without having to piece the process together from unrelated sources. Certainly more specific details could be obtained by referring to either party, depending on the specific nature of your concern.

Table 1.

USER EVALUATION QUESTIONNAIRE SUMMARY

	Overall System Rating (adequate to excellent)	Classroom Needs	School or Department Needs	Professional Growth	Complete Original Pursuit	Suggest New Pursuit	Re-evaluate Direction of Original Pursuit	Decision-making	Aware of Other One-stop Systems		Example of One-stop Systems Known	Previous Sources of Information	Type of Resource Utilized		
									Yes	No			People Contacted	Programs Contacted	Printed Material Read
Teacher N=13	10 76.9	3 23.1	5 38.5	7 53.8	8 61.5	3 23.1	0 0	2 15.4	4 30.1	9 69.2	ERIC State Dept.	Library Int. District	2 15.4	2 15.4	11 84.6
Principal N=38	33 86.8	3 7.9	31 81.6	7 18.4	8 21.1	18 47.4	4 10.5	22 57.9	13 34.2	21 55.3	ERIC ASSIST ARIS Reg. Lab University	Library Colleague University State Dept. ASSIST ARIS ERIC Int. District	11 28.9	18 47.4	23 60.5
Superintendent N=9	7 77.8	0 0	8 88.9	1 11.1	2 22.2	1 11.1	2 22.2	5 55.6	4 44.4	4 44.4	ERIC Croft Service Reg. Lab R&D Center ARIS ASSIST	State Dept. AASA ASCD ERIC University Reg. Lab	4 44.4	4 44.4	3 33.3
Public School Director N=38	28 73.7	2 5.3	35 92.1	6 15.8	12 31.6	14 36.8	10 26.3	19 50.0	15 39.5	21 55.3	ERIC ARIS ASSIST University SRIS SMI Reg. Lab	Library University Colleague ERIC State Dept. Int. District ASSIST ARIS	8 21.1	18 47.4	19 50.0
County or Inter. Consultant N=22	15 68.2	1 4.5	15 68.2	7 31.8	12 54.5	5 22.7	2 9.1	10 45.5	15 68.2	6 27.3	ERIC ARIS ASSIST Int. District	State Dept. University Colleague ERIC ASSIST ARIS	3 13.6	7 31.8	13 59.1
University N=17	16 94.1	1 5.9	9 52.9	7 41.2	5 29.4	5 29.4	0 0	4 23.5	5 29.4	11 64.7	ERIC Reg. Lab ASSIST SRIS	Library ASCD USOE NEA ARIS ERIC	2 11.8	2 11.8	13, 76.5
Other N=8	7 87.5	0 0	4 50.0	3 37.5	4 50.0	1 12.5	1 12.5	1 12.5	2 25.0	6 75.0	ERIC ASSIST	Library Reg. Lab	0 0	2 25.0	4 50.0

Evaluation of the Regional Information System

Background

Early in 1967, the Michigan-Ohio Regional Educational Laboratory (MOREL) in addressing one of the major expressed needs of the region, undertook the development of an information system. The system's design was such that it permitted educators in the region to present questions on a wide variety of subjects and interest areas and receive referrals to programs, projects, people, and printed materials. These referrals represented alternatives for the requester of information as he pursued solutions to his problems and concerns. A great deal more could be said about the specifics of the information system's operation but, as the purpose of this document is to report the results of the evaluation study, reference will be made to a companion document which presents the operational aspects of the MOREL Regional Information System (RIS) in greater detail. This document is titled, *Establishing the Information System — An Operational Handbook.*

Procedures

In undertaking an evaluation of the MOREL RIS, the intent was to determine whether the educators were able to receive, from the RIS, information that would be helpful to them. A detailed study of the ultimate use of the information was not undertaken, nor was the RIS compared directly to other existing information sources or systems. Rather, each requester was asked to give his candid impressions of the RIS in terms of his reasons for the request, the use of the information, his previous knowledge and use of information sources and systems, and his general rating of the services provided through the MOREL RIS. Since the RIS focuses on providing various types of referrals, i.e., people, programs, and printed materials, the evaluation sought the utilization of these various types of information and their value to the requester. The evaluation instrument used in the study is found in the Appendix.

Limitations

The activities of MOREL are developmental in nature. Thus, with regard to the Regional Information System's operation, the services provided were to facilitate the field testing of the developed model. Consequently the nature of the limited exposure of educators to this service will qualify the results reported later in this presentation. They will, however, include sufficient data from which conclusions can be drawn.

Sample

During the field testing phase in 1968, service was offered to 302 requests, represented by 218 individual requests. Multiple requests and general informational requests about MOREL's program accounts for the difference. The User Evaluation Questionnaire was sent to all requesters, with 145 being completed and returned. The results were analyzed and comparisons made according to the role of the requester. The tabulation of the data is presented in Table 1. N in each case represents the total number in that particular role classification responding to the instrument. In each box, the number in the upper left corner represents the number out of the total N for that role that checked that category. The number in the lower right corner indicates the percentage response.

Analysis

The category, "Overall System Rating," provided each requester a 7 point response. The percentages indicated in column 1 represent the average or adequate rating through the excellent rating. Viewing the average of all roles, it appears that roughly 8 out of each 10 requesters were satisfied with the services provided by the RIS.

The next 3 categories, "Classroom, School, and Professional Growth Needs," were designed to permit the requester to specify his reason for seeking information. Here we begin to note some differentiation between the roles and their reason for seeking information. Principals, superintendents, and the director-coordinator level in the public elementary and secondary school seem to be concerned principally with school needs, while the teacher, consultant, and university roles lean more toward their own professional growth than the others.

The categories of, "Completing, Suggesting, and Re-evaluating Pursuits" along with "Decision-Making" represent choices for the requester in terms of the use to which he put the information. Here again we see the roles of principal, superintendent, and director-coordinator as primarily concerned with a decision-making orientation while the other roles of county consultant, university, and teacher are increasingly less concerned with decisions. It is also important to note that on an average for all roles, roughly 25% of the time the information provided was able to suggest new pursuits.

The next set of categories relate to the requesters' knowledge of similar information systems and his previous sources of information. The county consultant level seems to be more aware of what is "happening" than other roles. Again the average of the roles would indicate lack of knowledge of existing systems similar to the MOREL RIS. Of the examples of known systems, Educational Resources Information Center (ERIC), Association Referral Information Service (ARIS), and Activities to Support and Stimulate Innovations in Schools Today (ASSIST) were frequently mentioned. Two of these, ARIS and ASSIST, have been patterned after the MOREL RIS to a large degree and represent evidence of independent operational installations of the MOREL concept of information systems. ERIC, of course, is a vital part of the printed material referrals in the RIS.

Previous sources of information were about as expected with individual library work, intermediate or county districts, colleagues, state departments and universities being utilized. Several references to recently created information systems such as ARIS and ASSIST were mentioned along with ERIC, Regional Labs and R & D Centers. The interesting point here is that each role seems to view the county or intermediate district as a vital role for providing information. This may have implications in terms of the location of information systems within each state.

The last 3 categories, "People and Program Contacted and Printed Materials Read," review the actual followup by the requester to the various types of information supplied. Principals, superintendents, directors-coordinators, and county or intermediate consultants seem interested in visiting existing programs as a means of becoming aware of what's "happening". This may be affected by their ability to be more mobile than the teacher role. Very little total interest was expressed in seeking contact with individuals by any role. This may be accounted for by a potential cost factor and scheduling problem.

Summary & Conclusion

While a study of this type has limitations, certain generalizations seem to emerge from the data.

Initially it would appear that all roles are anxious for a more comprehensive one-stop service to emerge. Indications are that the model of the MOREL RIS might be a start in that direction. Following closely is the need for various types of information, both in form (i.e., people, programs and print) and in degree of difficulty or involvement. Information seems to be needed that can not only address specific concerns, when so stated, but also suggest direction to the more vague request. Certain roles, such as principals, superintendents, and directors-coordinators, seem to seek information that will result in closure and decisions, while teachers, consultants, and university roles seem to be after alternatives and ideas.

Present methods and sources of information services are loosely structured if structured at all. This results in a very ineffective procedure for obtaining information and often is a cause for lack of action. The role of the intermediate or county office seems to be emerging as the focal point for educational improvement and would appear to be the likely place to begin formalizing the transfer of information in a more meaningful way. Certainly, the concept of information has broadened from its previous scope (the written word) and now includes all forms of written communications (research reports, project descriptions, abstracts, bibliographies, etc.) as well as informational referrals to noted and competent teachers, administrators, and consultants at the county, state, and university level for the many exemplary projects and programs in existence today.

The Future

What does the future hold for the implications drawn from this study? Where do we go from here? One suggestion would be to continue the work that has been started in the area of knowledge utilization. This should be continued and utilized in the study of systems such as ERIC, ASSIST, ARIS, and the many "systems" evolving today. Effort must be made to coordinate the activities of these "systems" to assure maximum concentration of money and effort for maximum productivity. The federal government has been involved in initiating many of these systems and must now take the initiative in seeing that the most effective ones are continued and incorporated into a meaningful network.

Appendix

User Evaluation Questionnaires

MOREL INFORMATION CENTER

(Please respond to all questions)

Title or position ____________________ Name (optional)____________________

1. Which of the following best describes the reason for your request? (More than one choice permitted)

_____Classroom needs as I deal daily with students
_____School or department working on educational improvement in the area of my request
_____Professional growth (writing, reading, or further schooling) necessitated additional information
_____Interest as a result of attending a meeting, conference, etc.
_____Other (specify) ______________________________

2. Which of the following best describes how you used the information received as a result of your request? (More than one choice permitted)

_____to complete the original pursuit
_____to investigate new pursuits it suggested
_____to re-evaluate the direction of the original pursuit
_____to assist in decision-making about educational practices
_____other (specify) ______________________________

3. One of the objectives of the MOREL Information Center is to provide "one-stop" service where referrals to programs, printed materials, and consultants are available from one source.

   a. Are you familiar with other institutions, individuals, or agencies which could provide this "one-stop" service?

   Yes_____ No_____ (If yes, please indicate the name(s)

   b. From what source(s) did you obtain information prior to your using the MOREL Information Center?

4. How would you rate the services provided by the MOREL Information Center?

/_______/_______/_______/_______/_______/_______/_______/
excellent adequate unnecessary

5. What activities would you suggest we

   a. Start?

   b. stop?

   c. continue?

RESOURCE BANK
USER EVALUATION QUESTIONNAIRE

A. Resource People

1. Regarding the resource people referred to you, did you review the background information supplied?

_____completely
_____somewhat
_____not at all
_____none provided

2. Did you contact or engage any of the resource people?

_____Yes (specify) _____contacted _____engaged
_____No

3. How would you rate the contribution of those resource people you contacted or engaged?

_____provided many new ideas
_____provided some new ideas
_____provided very little that was new
_____reinforced present thinking
_____irrelevant
_____other (specify) ____

B. Projects & Programs

4. Regarding the projects and programs referred to you, did you review the background information supplied.

_____completely
_____somewhat
_____not at all
_____none provided

5. Did you write, telephone, or visit a project or program?

_____Yes (specify) _____Mail _____Telephone _____Visitation
_____No

6. How would you rate the contribution of the project or program you wrote to, telephoned, or visited?

_____provided many new ideas
_____provided some new ideas
_____provided very little that was new
_____reinforced present thinking
_____irrelevant
_____other (specify) ____

REFERRAL LIBRARY
USER EVALUATION QUESTIONNAIRE

1. Regarding the printed materials (bibliographies, articles, etc.) sent to you, were they

    a. read?

    /______/______/______/______/______/______/______/

    extensively   in part   not at all

    b. relevant to your needs?

    /______/______/______/______/______/______/______/

    highly   adequately   not at all

2. Concerning the referrals to other agencies for additional information, were they contacted?

    ____Yes
    ____No
    ____No referrals given

3. If agencies to which MOREL referred you were contacted, to what extent were they able to assist you?

    /______/______/______/______/______/______/______/

    extensively   somewhat   not at all

4. If agencies to which MOREL referred you were not contacted, why did you not contact them?

Appendix L

Projected Staff, Space, Equipment, and Materials
for the
Central Coordinating Office and Regional Centers

The staff, equipment, and materials for the Central Coordinating Office and Regional Centers shall be discussed in this appendix. Details for the Departmental Reference Station have already been given in Appendix E.

The requirements for the Central Coordinating Office shall be listed according to the implementation phases suggested in the recommendations section of the body of this report. It is suggested that the model for the Regional Centers be the Wayne County ASSIST Center as indicated earlier. Thus, the Regional Center model will be presented with a high degree of operational specificity while the Central Coordinating Office shall be basically a suggested beginning for a new and PRESENTLY [illegible] non-existant unit together with general directions for projected growth stages. The details of the growth stages should be worked out as a result of the pilot (Phase I) activities.

Central Coordinating Office

Phase I would include, in addition to the existing, educational reference collection at the State Library, the following:

Staff

1 Educational Reference Specialist
1 Secretary

Furniture

1 Desk, double pedestal w/chair
1 Desk, charging
1 Chair, swivel for charging desk
1 Cabinet, visible file
1 Worktable, 39" high w/formica top
1 Stool, swivel, adjustable height
3 Shelving, metal, 12" deep x 36" high x 84" high

Furniture (continued)*

- 1 Book truck
- 1 Stool, step
- 2 Table, index, double tiered
- 1 Table, library, 36" x 72"
- 3 Table, library, 36" x 60"
- 14 Shelving, library book, single faced 36" wide x 78" high
- 5 Shelving, periodical, 42" high
- 6 Shelving, periodical, 78" high
- 2 File Cabinet, horizontal, two drawer
- 4 File, 4 door, vertical
- 1 Cabinet, ten drawer file, microfilm
- 1 Stand, dictionary
- 1 Newspaper rack, horizontal
- 1 Microform reader/printer
- 1 Microfiche storage cabinet

Space

Reference Specialist's office -- 120 square feet
Secretarial area
Additional area for the reference

Other

Telephone (with one direct line to the Departmental Reference Station)
Telefacsimile link to the Departmental Reference Station
Access to a high-speed flat bed photocopier.

Phase II would involve the employment of a director and secretary as the first step and the addition of further administrative, reference, and technical staff as the Regional Centers are brought into being:

Staff

- 1 Director
- 1 Secretary
- When the Regional Centers are added the following personnel will be needed:
- 2 Reference Specialist
- 1 Technical Supervisor
- 2 Clerk/typist
- Additional personnel would be needed as the system grows to full scale operation

---

*The majority of this furniture is included with the MOREL reference collection which has been given to the Department of Education (see copy correspondence at the end of this appendix).

Space

Each professional would require a standard size office (120 square feet) with adequate adjacent work space.

Another 400 square feet should be allocated for additional reference materials (see below).

Additional Collections

Serious consideration should be given to adding the types of special collections listed in Appendix J.

Furniture

Adequate furniture should be added for the building of additional special collections.

Other

Telefacsimile and direct telephone links should be established between the Central Coordinating Units and all Regional Centers.

Regional Centers

The following are selected materials from the Wayne County Intermediate School District's ASSIST Center. Additional documentation and information are available from the Center.

ACTIVITIES TO STIMULATE / SUPPORT

The ASSIST Center

INNOVATION IN SCHOOLS TODAY

WAYNE COUNTY INTERMEDIATE SCHOOL DISTRICT

ACTION PROGRAMS
INFORMATION SERVICE
STAFF DEVELOPMENT

33030 VAN BORN ROAD
WAYNE, MICHIGAN 48184
AREA CODE: 313
274-9010 · 729-1770

ASSIST's Information Services is pleased to present this brief sketch prepared especially for those attending the MOREL-sponsored conference "Information Services for the Educator," November 19-20, 1968, at St. Mary's Lake, Michigan.

The ASSIST Center is a service of the Wayne County Intermediate School District. Funded in July of 1967 and functionally operative in October, this supplemental educational center has been designed as a three-year project.

Five priority educational needs in Wayne County, as determined by a year-long study, are those to which the Center addresses its efforts by assisting public and non-public educators in:

1. Fostering positive SELF-CONCEPTS in students.
2. MOTIVATING students for learning.
3. Understanding and providing for INDIVIDUAL need.
4. Professional understanding of the LEARNING process.
5. Dealing with PROBLEM students.

The ASSIST Center has four major components whose coordinated efforts are directed to helping meet the priority needs: INFORMATION SERVICES, ACTION PROGRAMS, STAFF DEVELOPMENT, and EVALUATION AND RESEARCH.

INFORMATION SERVICES

Information Services conducts a varied complex for educational research, information and dissemination. Research/reference specialists are located at the ASSIST offices in Wayne County Library Headquarters and Wayne State University Library.

Action Line (313) 274-9010. A telephone service providing information, references and direction to educators on all aspects of education. Operators are on duty 8:30 to 4:30 weekdays. Requests are also accepted and processed by mail.

DIAL (313) 729-0800. Dissemination of Innovative Activities thru Listening. A weekly recorded message, approximately two minutes in length, devoted to on-going innovation and promising practices, and to topics of general interest to education.

Central Files: A listing of exemplary programs in the metropolitan area.

The Assist Center

By

David L. Heinzman
Disseminator

ASSIST Is To Assist and Much More

INTRODUCTION

In English-speaking countries "assist" means to help. In Wayne County, Michigan, where assist is also ASSIST, it means to help and much more.

ASSIST (Wayne County version) stands for Activities to Stimulate and Support Innovation in Schools Today. It's a supplementary education and information center funded by Title III of the Elementary and Secondary Education Act of 1965 and administered by the Wayne County Intermediate School District.

PRIORITY NEEDS OF CHILDREN

A year-long study focusing on the priority educational needs of children in Wayne County preceded the establishment of ASSIST. The study was made under a Title III grant and was conducted by over 80 persons from all walks of life. Besides educators, persons on the study committee represented business and industry, labor, social agencies, the PTA and other community organizations.

Twelve priority needs were identified by the study. The top five to which ASSIST addresses its efforts are:

1. Fostering positive self-concepts in students.
2. Increasing motivation for learning.
3. Understanding students as individuals for purposes of instruction and psychological development.

4. Increasing teacher understanding of the learning process.
5. Helping teachers deal with problem students found in regula
classrooms.

Four major components of ASSIST are engaged in helping Wayne County's 27,000 public and non-public educators meet these five needs. These components are Action Programs, Evaluation and Research, Staff Development, and Information Services.

ORGANIZATION AND OPERATION

Action Programs has directed its major focus in two areas: (1) the development of a "self-actualization" curriculum and (2) an instructional, task-oriented workshop for teachers and paraprofessionals.

Working in three elementary schools and sharing its developing curriculum with a number of others in Wayne County, Action programs has as its goal a new "curriculum" which will help teachers become adult models of "fully-functioning" people; that is, using their capacities to the greatest extent possible, enabling them to establish a teaching-learning environment that will maximize pupil growth toward self-actualization.

The teacher-paraprofessional workshop is designed to open and to keep open communication between teachers and their full-time aides, especially in problem-solving, and to up-grade teaching skills in the area of individualizing instruction. The workshop is unique in that the 30 teachers and a like number of para-professionals are participating together as a staff without differentiation between the certified and the non-certified person.

Staff Development has sponsored a number of conferences and workshops designed to provide inservice training for those involved in the change process. It is currently concluding a 16-week workshop for 75 Wayne County elementary school principals. Workshop goals have been to provide experiences and skills to help principals increase their leadership effectiveness and to create a more "open climate" in their schools. The participating principals represented most public districts in the county and many parochial elementary schools.

The Staff Development component has sponsored consortiums on self-concept, value clarification, achievement motivation, individualization, and force-field analysis. It has developed a program to promote the creation of instructional materials by classroom teachers. The program provides substitutes while the teacher works on equipment at the ASSIST Center. It also provides materials, technical assistance,and equipment to enable teachers to develop high quality instructional materials.

Other activities of the Staff Development component have included a parent education program to improve parent-child communication; a series of training workshops for teachers in cross-age tutoring, and a workshop in self-concept for directors of special education from eight Wayne County school districts.

EVALUATION AND DISSEMINATION

Evaluation and Research provides in-depth analysis of Action Programs, Staff Development Activities and Information Services. This component assesses educational priorities of the community and evaluates programs of the ASSIST Center, and aids evaluation of priority-based programs of local districts.

Information Services researches the educational literature, and conducts information and dissemination programs. Research/reference specialists are located at the ASSIST offices in the Wayne County Library Headquarters and at the Wayne State University Library,Detroit.

Information Services limited its service area at the beginning of the project to Wayne County educators. Recently it expanded its potential service area to the entire state of michigan. This new responsibility developed through the installation at ASSIST of a regional information system developed by the Michigan Ohio Regional Education Laboratory (MOREL).

Backbone of the Information Services program is an educational "action line." This is a telephone service which provides information, references, and direction on all aspects of education. To date, nearly 2000 Action Line requests have been processed by the Center. Some of these are responded to immediately; others necessitate research which is conducted both at the Center; and at the Wayne State Library Action Line requests are also accepted and processed by mail.

Information Services has a second telephone service for Wayne County educators. Known as DIAL (Dissemination of Innovative Activities thru Listening), it's a weekly recorded message, about two minutes in length,devoted to topics of general interest in education.

Research documents gathered through ERIC (Educational Resources Information Center) are available at the ASSIST Center on microfiche. Other research documents and periodicals are available on microfilm. Many other professional resources including a Central Files Listing of exemplary Programs in the Detroit Metropolitan area, materials and instructional aids, copies of textbooks, workbooks, catalogs and programmed instructional kits are also available.

The Center has also become a Central Education Depository for the schools of Wayne County. This is a collection containing copies of negotiated teacher contracts, school and district policies, report cards, publications and other materials collected from the county's 39 school districts.

Two films have been produced by the ASSIST Center. The first, "TARGET: Eddie Daniels," was produced to depict the study committee process, the development of the project, and to disseminate information about program elements which have since become reality through the operation of the Center.

The second film, "Self-Concept--Marc's World," identifies and depicts elements of exemplary on-going programs in Wayne County Schools which enhance student self-concept.

These films can be ordered, rental free, from the Audio-Visual Department, Wayne County Federated Library System, 33030 Van Born Drive, Wayne, Michigan 48184.

Judging from the numbers of Action Line calls received, the thousands of visitors who have toured the ASSIST Center,the thousands of educators involved in ASSIST sponsored workshops and conferences, it's apparent that ASSIST is having considerable impact in its service area.

Evaluation is a continuous process. Several surveys of needs and interests have provided project goals and focused project activities. Massive testing using the Self-Concept and Motivation Inventory (Milchus, Farrar, and Reitz) have established baseline data in grades 1 through 6, and yielded diagnostic dividends which are aiding the development of the "self-actualizing" curriculum. Unobtrusive observation schedules are being developed for the behavioral objectives within the values curriculum. Content analysis is frequently used.

Following the Elementary Principals Effective Leadership Workshop, the principals significantly improved their consistency toward progressive versus traditional beliefs on Kerlinger's "Education Scale VII." A post-test of the 1200 teachers working with these principals using Halpin's and Croft's "Organizational Climate Descriptive Questionnaire" (OCDQ) will prove if the attitudes changed and skills learned effect the administrative climate of the school. New urban norms had to be formulated.

One of the most popular of the demonstration activities turned out to be the parent education program on developing self-concept. Process and participant assessment has helped in shaping a packaged program. Coopersmith's Mother's Questionnaire was used for discussion purposes.

A user survey on the information service is attempting to determine how the information is utilized by the clients. In addition, a recommendation survey with regard to continuation is underway to determine which services the local educational readers still want.

Over 700,000 public and non-public children attend schools in Wayne County. Their teachers are learning, and with good reason, to look to the ASSIST Center for assistance and much more.

PLANS FOR CONTINUATION AFTER TERMINATION OF PACE FUNDS

The ASSIST Center is completing the second of an anticipated three-year operation through Title III funding. Prospects for continuation of all or part of the Center's program after June of 1970 are currently being investigated. Quite likely, a portion of the program will be continued by the grantee, the Wayne County Intermediate School District. Funding for these services could include expanded local and/or state revenues. Also under consideration is the possibility of providing services to local districts on a charge back basis. As of this date, no firm continuation arrangements have been made.

Persons wishing more detailed or specific information about the ASSIST Center or its programs should contact Dr. Samuel Mangione, Director, 33030 Van Born Road, Wayne, Michigan 48184.

Professional Resources: Professional materials and instructional aids available for investigation and use at the Center. Includes examination copies of text books, workbooks, catalogs, and specimen copies of tests, examples of charts, games, models and programmed instruction kits. Also, an education reference library of books, periodicals, newsletters, curriculum guides, reprints and clippings.

Research Documents gathered through ERIC, Educational Resources Information Center, are available on microfiche. Other research documents and periodicals are available on microfilm.

Central Education Depository: A collection containing professional contracts, school and district policies, report cards, publications and other materials collected from school districts in Wayne County.

PUBLICATIONS

Newsletters: News of the Center and educational innovation in Wayne County.

TOPICS: Tables of Periodical Indices Concerning Schools. Provides tables of contents of current education journals.

Bibliographies: Prepared and published in response to Action Line requests and current trends in education.

Recent Acquisitions: A listing of professional resources gathered by the ASSIST Center.

Brochure: A capsule resume of the Center and its components.

News Releases: Information regularly provided local and metro mass media.

News Clipping Service: Xerox copies of education articles which appear in weekly papers published in Wayne County. The Center also receives and clips articles of interest to education from *The New York Times*, *The Wall Street Journal*, *The Christian Science Monitor* and *The National Observer*.

ACTION PROGRAMS

Develops innovative programs, establishes exemplary or model programs in local district schools and lends its efforts to assisting local schools which have established on-going innovative programs.

STAFF DEVELOPMENT

Provides in-service training for school staffs involved in the change process. Conducts workshops, demonstrations, labs, clinics and displays. Operates the Materials Production Center which provides both technical assistance and equipment for the production of instructional materials.

EVALUATION AND RESEARCH

Provides in-depth analysis of Action Programs and Staff Development activities. Evaluates educational priorities of the community and the resulting programs of the ASSIST Center. Lends evaluation support to priority-based programs of local distric

IS: 102168

ASSIST*

* Activities to
Stimulate &
Support
Improvement in
Schools
Today

INTERIM EVALUATION

APRIL, 1969

WAYNE COUNTY INTERMEDIATE SCHOOL DISTRICT
301 CITY COUNTY BUILDING
DETROIT, MICHIGAN 48226

The ASSIST Center
Title III ESEA Project

Operating Under the Aegis of the Wayne County Intermediate School District

Superintendent
William A. Shunck

Deputy Superintendent
William C. Miller

ASSIST Staff

Project Director	Dr. Samuel Mangione
Research and Evaluation	Norman J. Milchus, Assistant Director
Action Programs	Dr. Harold Wells, Assistant Director Dr. Walter F. Westfall, Action Programs Specialist
Information Service	Dr. Sanford Glovinsky, Assistant Director Federico Acerri, Reference Specialist (WSU) Mrs. Beatrice Katz, Resource Specialist Mrs. Carol Pollack, Information Spec. II David Heinzman, Disseminator
Staff Development	Walter J. Schumacher, Assistant Director Dr. Joseph C. Sommerville, Staff Development Specialist Robert W. Stafford, Staff Dev. Spec. Mrs. Sandra Littleton, Materials Production Specialist

Secretarial and Clerical

Mrs. Maryalice Beauton, Action Programs
Mrs. Sally Chudzinski, Administrative Office
Miss Sheila Clay, Information Service
Miss Patricia Gaul, Information Services (WSU)
Mrs. Marian Karvonen, Staff Development
Mrs. Wanda Koch, Administrative Office
Mrs. Claudia Lewis, Administrative Office
Mrs. Doreen Metzger, Information Service
Miss Marylou Rito, Staff Development
Mrs. Laura Thomas, Information Service
Miss Linda Woytovich, Information Service

E. TO INVOLVE THOSE IN WHOM CHANGE IS DESIRED IN ACTIVITIES THAT ARE DESIGNED TO FACILITATE CHANGE.

Activities will be located in local districts, if possible, and serve as model or demonstration programs. Large scale involvement, visitation, sharing of staff information, and ideas will be stimulated by Project ASSIST.

If worded in the present tense, the above objectives could briefly describe the present accomplishments of the ASSIST Center.

II. The ASSIST Center: The Relationship of its Components of its Objectives.

There are four major components of the ASSIST Center:

1. Information Services and Dissemination (formerly titled Clearing House and Dissemination).
2. Staff Development
3. Action Programs
4. Research and Evaluation

Each component is related to and support the other services of the center.

The Information Services and Dissemination component is most directly concerned with the objective: "To facilitate dissemination of information among the constituent educational agencies in Wayne County, to wider educational community, and to the public, and thereby inprove educational opportunities." The Information Services will be discussed under this objective. Dissemination Services, which are concerned with building awareness of ASSIST Center services will be discussed more fully in Attachment No. 5.: "Discuss how project information was disseminated."

The Staff Development component and Action Program component of the ASSIST Center focus directly on the overall objective and the objective: "To assist local educators in the development of

ATTACHMENT NO. 1C

EVALUATION OF OBJECTIVE: TO FACILITATE DISSEMINATION OF INFORMATION AMONG THE CONSTITUENT EDUCATIONAL AGENCIES IN WAYNE COUNTY, TO WIDER EDUCATIONAL COMMUNITY, AND TO THE PUBLIC, AND THEREBY IMPROVE EDUCATIONAL OPPORTUNITIES.

I. Dissemination of The ASSIST Center Takes Three Major Forms:

A. The business of the Information Services is the dissemination of processed educational information. This dissemination is only upon request or confirmation. Such information is usually comprised of theories, research studies, and developments on educational problems and educational innovations.

B. The dissemination which describes available services that clients may use pervades all activities. [This dissemination is discussed in Attachment No. 5.]

C. The dissemination of specific ASSIST Center activities and functions to other educational agencies and media for the purpose of diffusion. [This dissemination/diffusion is described in Attachment No. 5.]

II. The Activities of the ASSIST Center Information Services and Dissemination Component Which Meet the Dissemination of Information Objectives.

The purpose of the Information Services component is to put educators in touch with appropriate resources: human and material. The major element has been Action Line, a telephone service which supplies inquiring educators with information concerning their specific educational problem. The Action Line staff consists of specialists in educational information with a variety of resources. They may be called upon to contact the ASSIST branch office in Educational Library of Wayne State University for the xerographic reproduction of an article in a rare psychological journal. A pre-school program might need a consultant on perception, which the Action Line staff would find in the Inventory of Consultants. Perhaps, the caller requests the site of a "Middle School" organization which is open for visitation. This would be found in the Compendium of Innovative Programs and Exemplary Practices which was gathered by the ASSIST Center staff with the cooperation of the Michigan-Ohio Regional Educational Laboratory. A digest of research, an annotated bibliography, manuals, tables of contents of pertinent periodicals and books or a direct answer may be furnished. The data may already be available in the Selective Dissemination of Information (SDI) files of materials that had been specially prepared and distributed to those key persons who are or should be interested in the topic. Some calls were received after-hours on recording equipment. The caller might be induced to visit the offices of Action Line, housed in the Wayne County Headquarters Library adjacent to the Wayne County Intermediate School District's Professional Resource Center (a professional library established with support from Title II ESEA), a model school library, a sizeable film collection, a collection of current teaching aids and kits, a conference room, and to the ASSIST Center's Materials Production Center with a variety of equipment to examine or use. The Negro History and Culture Library is a unique feature maintained from the Wayne County Desegregation Project.

A cooperative undertaking of the Wayne County Superintendents Association and the ASSIST Center Information Services component led to the ASSIST Central Educational Depository housed in the Action Line offices. This depository is devoted to maintaining a current collection of locally produced educational materials, including report cards, surveys, curriculum guides, pupil conduct booklets, personnel policies, and project evaluations.

A popular service of the Information Services component is the TOPICS (Tables of Periodical Indices Concerning Schools) catalog of between 40 to 100 tables of contents from 160 current educational journals. The mailings (150) have been aimed largely at superintendents and their staff and to the staffs of the ASSIST Center and the Wayne County Intermediate School District. To request an article, the superintendent or any member of his staff can tear out a page, circle the article title, and mail the page back to the ASSIST Center. The remaining catalog is retained for future reference. Many districts use TOPICS to find articles in their own collection of periodicals.

In 1968, the film The Self Concept: Marc's World joined the awareness film The Target: Eddie Daniels, which focused on the needs and potential services available to a school, a teacher, and a fictional child, Eddie Daniels. The Self Concept: Marc's World portrays ASSIST Center activities such as individualized instruction, cross-age tutoring, interpersonal communication techniques, parent education programs, and other programs developed to enhance the self-concept and academic motivation of students.

III. Evaluating the Dissemination of Information Objective.

Information Service's Action Line celebrated its unsolicited 2001 requests for information last month. Not included in this total are many of the requests [137 are included] from the ASSIST and Wayne County Intermediate School District staffs, both of which multiply many times over the persons reached with this information. In addition, a large number of these unsolicited requests contain two to four separate areas of inquiry. Since the first year of operation which yielded 630 calls, the rate has almost tripled in the last five months. Not counted in the 2001 are the many walk-in clients who are directly put in touch with the resources.

The first year of operation saw much attention to the pattern and content area of requests. This was useful in planning, however, in more recent months it has become evident that Information Services can anticipate, and the ASSIST Center can stimulate interest in problem areas. A DIAL message produced 200 requests for the ASSIST Center's book on Sources in Negro History and Culture. Second high was the wide distribution of the source book on Drugs and Youth at the conference of the same name, and the subsequent requests from a DIAL offering.

The Conference on Innovation and Change generated requests for the Individualized Instruction book and over 100 post-conference requests for the self-evaluation handout.

Over 2500 visitors during the first year seldom toured the ASSIST Center or used the Materials Production without picking up a few of ASSIST's 32 bibliographies. On-site services, conference handouts, routine reprints, and much of the internal service is not counted in the 2001 request total.

When DIAL messages produced but few callers (recorded on the automatic counter) during the summer months, the decision to continue for a few more weeks was made due to DIAL's innovative nature. It was a decision to be well-rewarded. DIAL has now been averaging between 100 to 300 calls per weekly message. Many principals have reported that they tape-record the message for teachers' meetings or play them directly into their building's communication system.

The two films have been in such demand that a fourth circulating print of The Self-Concept: Marc's World had to be ordered. The Self-Concept is booked several months in advance. Forty-six circulations of The Self-Concept have been made (the number of showings is undetermined). An additional 25 showings were given by ASSIST staff members. Six showings were out-of-state. The Target: Eddie Daniels has had 40 circulations, eight of which have been out-of-state. Both films were shown to the National Council of Parent-Teacher Associations.

An evaluative criterion in addition to the exponentially rising number of calls,is the increasing sophistication of the inquiries and ability of the total ASSIST staff in answering them. A sampling of some recent requests that have been answered is included in Figure No. 4.

A massive User Evaluation Survey has been initiated. The purpose of the qualitative evaluation is to determine how the information provided has beed used. Do users share their information? Do they actually put it into practice or use it for decision-making? Information is a component of leadership, but are the most influencial leaders being served? These are some of the questions which will be answered by this sample survey. Although delayed several times due to conflicting surveys, and the anticipation of the Michigan State Department's fourthcoming study on Michigan's regional information needs, the pilot questionnaires have been sent out. The findings should be of national importance to the educational information movement. A copy of the questionnaire is included in the Appendix.

SAMPLE ACTION LINE QUESTIONS

1. What are the effects of infant malnutrition on adult learning?

2. What is the probability of success in college of a high school student with a poor scholastic average?

3. What is the historical and philosophical development of self-concept in education?

4. What are the effects of training in mathematics using operant conditioning techniques on the acquisition of Piagetian concepts?

5. How does language develop in children and what early influences effect language development?

6. What are the effects of a half-day or shortened school day on elementary children?

7. What are the advantages/disadvantages of using the language experience approach in the teaching of language arts in the elementary school?

8. What materials can volunteers use to teach an adult literacy program?

9. What materials, programs, or texts can teachers use to develop aesthetic values in elementary education?

10. What are the effects of teacher attitudes towards a guidance program?

11. What are the advantages financially and educationally of an off-street driving center?

12. What are specific techniques for developing decision-making and independence in children?

13. What are the effects of retention of a child in school?

14. What are the necessary elements/equipment for a pre-kindergarten and kindergarten room?

15. What are some of the medical and psychological services provided for the pregnant, unwed teenager in various areas in the U.S.?

16. Information on group counseling for disturbed children using the video tape feedback approach.

Fig. 4 -- A sample of the level and breadth of questions answered by Action Line.

ATTACHMENT NO. 3

"3. Report the Effect of the Project on the Educational Institution or Agency by Discussing What you Consider to be the Greatest Change Resulting from the Project."

The three greatest changes in Wayne County resulting from the ASSIST Center are: (1) the establishment of Information Services; (2) the establishment of the Action Programs and Staff Development concepts of in-service education and educational innovation; and, (3) the effect upon the expanding role of the Wayne County Intermediate School District.

I. The Establishment of Information Services

Prior to the ASSIST Center's Information Services, the education libraries of the major universities were open only to teachers who were part-time graduate students, but the use of these libraries was restricted and limited for most of the non-student practitioners desiring information in educational practices. The Detroit Public Library, Main Branch, has an adequate education library, however, it is geographically remote for the majority of Wayne County School districts, and until recently required Detroit residency. Too often the educator's critical moment of inquiry had passed by the time a special trip to one of the libraries could be made.

The ASSIST Center's Information Services compnent is located in the geographic center of Wayne County to accommodate visitors. Housed in the Wayne County Headquarters Library, the main office of Information Services is adjacent to a professional education library, part of the Professional Resources Center of Title II, ESEA. The library section of the Center receives administrative support from the ASSIST Center. Using these facilities, the Information Services component operates Action Line, a telephone service which answers questions on education and educational research. Request on education are quickly translated into an annotated bibliography, manual, table of contents of a pertinent book-periodical, xerographic reproduction of an article, a digest of research, or an immediate answer or referral by a specialist in education information--an individualization of service unknown in any metropolitan Detroit library. An office is maintained in the Wayne State University Education Library, thus making this outstanding resource available to all interested parties. None of these services were offered or are now offered by any other agency in the metropolitan Detroit area Now, for the first time, an educator can base a decision or implement an action on educational research which was gathered with no more effort than a phone call!

TOPICS (Tables of Periodical Indices Concerning Schools) and Selected Dissemination of Innovations. (SDI) are mailed to key, interested educators in Wayne County. These publications aggressively seek to stimulate educational practitioners to enlarge their knowledge sources and to focus their attention on solutions to priority needs.

Other elements of Information Services are: The ASSIST Central Educational Depository, Compendium of Innovative and Exemplary Practices, and Inventory of Consultants. These services respond to request for locally produced materials, consultant lists, and the sites of innovative practices which are open for visitation.

An increasing number of out-state requests indicate a need for an expansion of information services in the State of Michigan. The Michigan-Ohio Regional Educational Laboratory has turned its files and delegated its responsibility for information service in the State of Michigan to the ASSIST Center. The ASSIST Center will continue to meet this additional responsibility until a total plan for information services in the State of Michigan can be concluded. Under present resources, this can only be an interim function.

The ASSIST Center Information Services has demonstrated that it can be a prototypic model of a regional educational information service. The ASSIST Center's Information Service has experienced personnel, established files, regular clientele, related services, in-house consultants, and great speed and flexibility of retrieval and input; therefore, the ASSIST Center should continue to be a first line of inquiry for many years to come.

II. The Establishment of the Action Program and Staff Development Concepts of In-Service Education and Educational Innovation.

The features of the Action Programs and Staff Development Programs were not available prior to the ASSIST Center Program. Local in-service programs of any duration were restricted to the efforts of local personnel, the Wayne County Intermediate School district, and university consultants. Continuous programs for parents were solely dependent upon local guidance talent. Large scale innovative programs

ATTACHMENT NO. 5

"5. Discuss How Project Information was Disseminated. Include Such Information as (1) the Number of Unsolicited Requests for Information; (2) the Number of Visitors From Outside the Project Area; and (3) the Estimated Costs of Such Dissemination."

A. Dissemination of Available Services:

The most productive form of dissemination in producing user clients was the informal personal contacts of the ASSIST Center and Wayne County Intermediate staffs. Clients of any consultant or service soon became users of many services. Such informal contacts are not without design. Target areas and target groups are considered when planning any activity. Individual staff memberships and attendance at meetings gives the ASSIST Center visibility and promotes the use of services.

Formal awareness dissemination comes from:

DIAL, weekly recorded telephone messages encourages greater use of services.

TOPICS, monthly list of current available reprints.

Circulation of the ASSIST Center Newsletter and brochure reaches those teachers who are not contacted by usual sources.

Clipping Service includes references among education articles in the community newspapers which relate the ASSIST role in innovative activities.

Datanalysis, a new research reporting newsletter will be elaborating the details of evaluative data.

Selected Dissemination of Information (SDI) for superintendents, a recently expanded monthly computation of current information in the areas of greatest interest.

Recent Acquisitions lists the new books, periodicals and the ASSIST Center produced materials available at the Center.

Each of these above publications form a constant periodic reminder of the existence of the ASSIST Center and its services to all of the Wayne County districts.

Films (such as Target: Eddie Daniels and The Self-Concept: Marc's World) have been extremely effective means of engendering interest in the ASSIST Center.

Formal presentations to organizations have led to active participation in programs such as the Elementary Principals' Effective Leadership Workshop, the Central Educational Depository, and the Wayne County School Board Leadership Program.

Displays have stimulated interest and awareness as well as distributed materials. One of the major displays at the first Seminar on Negotiations sponsored by the American Association of School Administrators in Romulus, Michigan provided many hand-outs of related materials.

B. The Demonstration/Diffusion in Natural Settings.

The Action Program schools provide natural settings for the demonstration of innovative practices. Exchanges and visitations both formal and informal, have taken place at the Action Program schools. The film, The Self Concept: Marc's World was an efficient report on several of Action Program activities. A role-playing skit was presented by the faculty of the Perrinville School to the Special Services Directors of the county.

C. Publications in Progress

Many publications are imminent on such topics as Parent Education the Action Program curriculum, and "A Workshop to Develop Innovative Leadership in School Boards", and the results of the User Survey of Information Services. These are high priority activities for the summer months. A simulated game, School Board, has been written to replicate innovative decision-making and to point out the importance of educational research.

D. "The Number of Visitors from Outside the Project Area."

The number of visitors from within the project area is between 2500 and 3000. The number of visitors from outside the project area is well over 100. The persons and institutions which signed our Guest Book are named in "A List of Visitors from Outside this Project Area". This is not a complete list since many visitors come to see only one consultant, or forget to sign the Guest Book. A partial "List of Unsolicited Requests for Project Information from Outside the Project Area" is also included.

II. The Estimated Cost of This Dissemination Is Approximately $42,700.00.

Related Correspondence

MOREL

MICHIGAN-OHIO REGIONAL
EDUCATIONAL LABORATORY
3750 WOODWARD AVENUE • DETROIT, MICHIGAN 48201 • (313) 833-1320

June 13, 1969

Dr. Ralph Kellogg
Director, Curriculum Division
Bureau of Educational Services
Board of Water & Light Building
Lansing, Michigan 48902

Dear Dr. Kellogg:

I would like to review our telephone conversation of last week regarding your interest in obtaining selected components of the MOREL Information System.

It was indicated that certain criteria must be met as we give consideration to the disposal of our Information System inventory and certain related equipment. Receiving institutions must qualify on the basis on the following criteria:

1. Be a non-profit educational institution.
2. Provide adequate space to house the inventory and related equipment. Such space being subject to review and approval by MOREL.
3. Agree to the utilization of the received goods, i. e. it should not be stored and unused for any length of time.
4. Provide necessary staff, clerical and professional, to insure proper utilization of the inventory.
5. Agree to maintain and keep current the components of the inventory that, by their very nature, would tend to be of little value if a current and complete collection were not maintained.
6. Make the arrangements and handle the costs of boxing, crating, and transporting the inventory and related equipment to its destination. Such arrangements will be by mutual agreement as to time.

BOARD OF DIRECTORS • President: J. W. Menge, Dean, College of Education, Wayne State University • Vice President: Paul F. Spayde, Assistant Superintendent, Ohio State Department of Education
Virgil E. Blanke, Professor & Director, Development, College of Education, The Ohio State University • George E. Dickson, Dean, College of Education, The University of Toledo • Norman Drachler, Superintendent, Detroit Public Schools • William J. Early, General Superintendent, Flint Community Schools • Most Rev. C. E. Elwell, Episcopal Vicar for Education, Diocese of Cleveland • William J. Emerson, Superintendent, Oakland County Schools • Jesse F. [illegible], Bio-Chemist, Children's Hospital of Michigan • William B. Hawley, Assistant Dean, College of Education, Michigan State University
J. Warren Houston, Sr., Administrative Assistant, Community Relations, Ohio Bureau of Unemployment Compensation • E. Leonard Jossem, Professor & Chairman, Department of Physics, The Ohio State University • John D. Millett, Chancellor, Ohio Board of Regents • Ira Polley, Superintendent, Michigan Department of Education • Charles Reid Rice, Educational Consultant • Jack R. Rombouts, Assistant to the President, Northern Michigan University • John W. Shreve, Associate Superintendent, Cincinnati Public Schools • C. Maurice Wieting, Vice President, Ohio Farm Bureau Federation, Inc.

You also indicated an interest in receiving the entire MOREL Information System inventory and related equipment. This was viewed as a basis for a state-wide educational information system presently under consideration by the Michigan State Department of Education.

On the attached sheet (s) you will find a description of the inventory and related equipment that is being offered for consideration. It is our desire that you review this inventory and the above mentioned criteria and indicate your future interest in this matter.

If interested, it is suggested that you submit a letter indicating your acceptance of the criteria as guidelines for your use of the materials and, by referring to the attached inventory sheet (s), specify individually or collectively the inventory and equipment you desire. This letter should be directed to Dr. William F. Young, Director - Administration and Communications.

Upon receipt of your letter of intent, final details will be worked out so that an official decision can be made shortly.

Sincerely,

C. J. Kromer

Charles J. Kromer, Coordinator
MOREL Information System

CJK/vim

Enclosure

cc/S. C. Rankin, Executive Director
W. F. Young, Director
Ira Polley, Superintendent of Public Instruction

GENERAL MATERIALS (COLLECTIONS) INVENTORY *

1. (Reference Item 8) A collection of roughly thirty (30) Index Titles. Most date beginning in 1967. Several of the major titles should be continued at a cost to the receiving institution. However, if receiving institution has an existing library, it may already be subscribing to some of these.

2. (Reference Item 12) MOREL collection includes roughly 5000 items, mostly ephemeral. Ten (10) percent are represented by books. Current collections of all R & D Center, Regional Laboratory, etc. publications, programs, reports, and projects are included. The receiving institution must contact each of these, indicate they are continuing the MOREL collection, and ask to be put on the mailing lists.

3. (Reference Item 18-19) A collection of roughly one-hundred twenty (120) journals with back issues to September, 1967. Roughly fifty (50) journals are on microfilm with back issues starting in 1960. Several of the major journals should be continued by the receiving institution. However, if receiving institution has as existing library, it may already be subscribing to many of these.

4. (Reference Item 18-19) A collection of roughly one-hundred fifty (150) educational newsletters. This collection represent one of the most complete collections and must be maintained by the receiving institution. Most newsletters are free but would require receiving institution to contact the existing agencies, indicate they are maintaining MOREL's collection, and ask to be placed on the mailing list.

5. (General Reference) Assorted library supplies including book cards, catalog cards, princeton files, charging cards, pamphlet binders, etc.,

* Attachment is page 5 for June 13,1969 letter to Dr. Ralph Kellogg, Michigan Department of Education.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1969-334-730

STANDARD FORM 122
OCTOBER 1963
GEN. SERV. ADMIN.
FPMR (41 CFR) 101-43.315

TRANSFER ORDER
EXCESS PERSONAL PROPERTY

1. ORDER NO.

2. DATE

3. To: GENERAL SERVICES ADMINISTRATION
PROPERTY MANAGEMENT AND DISPOSAL SERVICE
PERSONAL PROPERTY DIVISION

4. ORDERING AGENCY (*Full name and address*)

5. HOLDING AGENCY (*Name and address*)

6. SHIP TO (*Consignee and destination*)

7. LOCATION OF PROPERTY

8. SHIPPING INSTRUCTIONS

9. ORDERING AGENCY APPROVAL

SIGNATURE

DATE

TITLE

10. APPROPRIATION SYMBOL AND TITLE

11. ALLOTMENT

12. GOVERNMENT B/L NO.

13. PROPERTY ORDERED

GSA AND HOLDING AGENCY NOS. (a)	ITEM NO. (b)	DESCRIPTION (*Include noun name, FSC Group and Class, Condition Code and, if available, Federal Stock Number*) (c)	UNIT (d)	QUANTITY (e)	ACQUISITION COST	
					UNIT (f)	TOTAL (g)
		LIBRARY ADMINISTRATIVE & WORKROOM FURNITURE AND EQUIPMENT (RIS)				
	1	Desk, charging, wood, walnut. Standard Wood Products model 154P	ea	1		231.90
	1a	Chair, swivel, wood, walnut. Std. Wd Prod model J42	ea	1		34.50
	2	Cabnet, visible file. Acme.	ea	1		70.00
	3	Keydex encoder/viewer. McBee model 75-010-01 Serial # 1147	ea	1		940.00
	3a	Keydex viewer, portable. McBee model 75-030-01	ea	3	94.00	282.00
	3b	Keydex file, key card. McBee model 3001	ea	1		68.25
	3c	Keydex file, 2 drawer. McBee model 1602	ea	1		68.20
	3d	Keydex table. McBee model 4050	ea	1		105.00
	4	Worktable, 39" high, wood w/formica top. Bro-Dart model 58 110	ea	1		106.50
	4a	Stool, swivel, adjustable hgight w/ adj. back, cloth covered. Cramer	ea	1		21.50
	5	Shelving, 12"deep, 36"wide, 84" high, metal, gray. Three sections w/ 21 shelves	ea	1		144.60
	6	Book truck, wood, walnut. Std Wd Prod 143	ea	1		106.50

14. GSA APPROVAL

SIGNATURE

TITLE

DATE

FOR GSA USE ONLY	AGENCY AND LOCATION				FSC	CONDITION	SOURCE CODE	
	AGENCY	STATE						

122-107

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☆ U. S. GOVERNMENT PRINTING OFFICE: 1969—334-790

STANDARD FORM 122
OCTOBER 1963
GEN. SERV. ADMIN.
FPMR (41 CFR) 101-43.315

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11. ALLOTMENT

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	7	Stool, step, wood, walnut. Std. Wd Prod model 150A	ea	1		23.50
	LIBRARY GENERAL FURNITURE AND EQUIPMENT (RIS)					
	8	Table, special index, wood, walnut. Std Wd Prod Model 114P	ea	2	365.50	731.00
	9	Table, Library 36x72", wood, walnut. Std Wd Prod model 103P	ea	1		135.30
	10	Table, library, 36x60", wood, walnut. Std Wd Prod model 101P	ea	3	101.90	305.70
	11	Table, study carrell, dry, wood, walnut. Std Wd Prod	ea	1		80.45
	12	Shelving, library book, wood, walnut, 78" high, single faced. Std Wd Prod 202-3 two unit section.	ea	4	175.46	701.84
	13	Shelving, as above but, 4 unit section model 200PD	ea	1		325.30
	14	Shelving, as above but, 5 unit section model 202	ea	1		501.00

14. GSA APPROVAL

SIGNATURE

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	AGENCY	STATE					

122-107

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STANDARD FORM 122
OCTOBER 1963
GEN. SERV. ADMIN.
FPMR (41 CFR) 101-43.315

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11. ALLOTMENT

12. GOVERNMENT B/L NO.

13. PROPERTY ORDERED

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	15	Shelving, as above but, single unit section model 203	ea	1		87.73
	16	Shelving, as above but, double faced, 42" high, 2 unit section	ea	1		277.50
	17	Shelving, as above but, double faced, 42" high, 3 unit section	ea	1		430.35
	18	Shelving, periodical, as above but, single unit model 200PD	ea	2	197.80	395.60
	19	Shelving, periodical, as above but, 2 unit section model 200PD	ea	2	395.60	791.20
	20	Chair, library, wood, walnut. Std Wd Prod model J39	ea	39	15.75	614.25
	21	File cabinet, horizontal, two drawer, legal size, black. Cole model 254	ea	2	180.00	360.00
	22	Cabinet, card catalog, wood, walnut. Std Wd Prod model 126-30R	ea	1		383.50
	23	Cabinet, filmstrip/slide w/4 #37 slide file inserts. Luxor model 300	ea	1		61.78

14. GSA APPROVAL

SIGNATURE

TITLE

DATE

FOR GSA USE ONLY	AGENCY AND LOCATION				FSC	CONDITION	SOURCE CODE
	AGENCY	STATE					

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OCTOBER 1963
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	24	Cabinet, magnetic recording tape, 7" reel max. capacity. Luxor model 702	ea	1		109.10
	25a	Cabinet, file, ten drawer, microfilm. Kodak model 07507	ea	1		316.75
	26	Stand, dictionary/atlas, free standing. Std Wd Prod model 146	ea	1		83.70
	27	Newspaper rack, horizontal, wood, walnut. Bro-Dart model 54-179. w/ten holders.	ea	1		116.00
	28	Microfilm/Fiche reader/printer. 3M model 75AA [Filmac 400] SN: 004107M	ea	1		1390.00
	29	Microcard storage cabinet (tan color) All steel model 5363 furnished w/ fiche collection	ea	1		209.00

14. GSA APPROVAL

SIGNATURE

TITLE

DATE

FOR GSA USE ONLY

AGENCY AND LOCATION				FSC	CONDITION	SOURCE CODE
AGENCY	STATE					

☆ U. S. GOVERNMENT PRINTING OFFICE: 1969-534-730

APPENDIX M

Selected Correspondence and Documents Relating to the Project

(in chronological order)

STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
Lansing, Michigan 48902

IRA POLLEY
erintendent of Public Instruction

STATE BOARD OF EDUCATION
PETER OPPEWALL
President
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MARILYN JEAN KELLY
CHARLES E. MORTON
EDWIN L. NOVAK, O.D.
GOV. WILLIAM G. MILLIKEN
Ex-Officio

March 24, 1969

Dr. Carl Byerly
Associate Superintendent
Detroit Public Schools
5057 Woodward
Detroit, Michigan 48202

Dear Dr. Byerly:

We wish to request of you the service of one of your employees, Dr. George Grimes, to conduct a master plan study for the development of an information system within the Michigan Department of Education. We became aware that Dr. Grimes had worked with the development of the information system for MOREL and that component of the STADIS project in Wayne County. Dr. Ralph Kellogg of our staff, upon meeting and conferring with Dr. Grimes, recognized his competence in this area, growing out of that work and his doctoral dissertation. At our request Dr. Grimes presented to us an information system model and delineated a step-by-step task procedure related to the development of a Michigan Educational Information System should we wish to have such a study done.

It is now our intent to request such a study be undertaken by Dr. Grimes, working in cooperation with our staff here. We anticipate that such a study would be conducted during the months of April, May, and June, with the final report available early in July. Dr. Grimes informs us that it will be necessary for him to continue some administrative tasks in the Detroit systems should such a request be made. Therefore, we would anticipate utilization of his services typically on a four-day week basis, leaving one day of time for administrative tasks in the Detroit system. Thus, we would propose 18 days in April, 17 days during May, and 17 days during June. An appropriate honorarium, plus travel and necessary secretarial services, would be provided Dr. Grimes. My understanding is that he has communicated with Mr. James D. Berry, Director of the Department of Instructional Services, regarding this possibility and that it is now our responsibility to make this request from you.

We recognize the extra administrative burden this may place upon your personnel to have Dr. Grimes perform this service for us, but we also recognize our need of his expertize in long range planning which ultimately would improve our services to local school districts, including Detroit, from the State Department of Education.

I would appreciate receiving information from you regarding the use of Dr. Grimes for this study.

Sincerely,

Ferris N. Crawford, Associate
Superintendent for Educational Services

SUBJECT: - DETAIL OF POTENTIAL ARRANGEMENTS WITH THE STATE DEPARTMENT OF EDUCATION REGARDING CREATION OF A MICHIGAN STATE EDUCATIONAL INFORMATION SYSTEM

FROM : - George H. Grimes, Supervisor, Curriculum Laboratories

TO : - Dr. Carl L. Byerly, Associate Superintendent, Office for Improvement of Instruction

DATE : - April 2, 1969

In response to your request for details regarding the method of compensation and the availability of replacement personnel in the event that I should assist the State Department of Education with the formulation of a Michigan State Educational Information System, I offer the following:

1. My understanding regarding payment for my services on the four days a week which I would be working for the State Department is that they would pay me directly for my services. I would therefore be on the Detroit payroll at a two tenths rate (.2) for the three month period in question. The remaining eight tenths (.8) of my salary should be more than adequate to pay for a full-time substitute as replacement. This substitute's responsibility would be direct service; I would handle necessary administrative detail during my one day a week. The optimum situation would be to provide a full-time ESRP, this would allow me to come in two half days a week which would expedite paperwork.

2. Mr. Philip Carrington, who has worked successfully at the Schools Center laboratory, has just completed his student teaching but lacks one course for full certification. He, therefore, represents an available person who would not be coming from a regular classroom assignment. Mr. Carrington is presently substituting for Mr. John Titus of the Stevenson Curriculum Laboratory. Mr. Titus is expected to return after Easter vacation.

If I can provide any more information please contact me.

GHG/b

cc: Dr. James Berry

Form 556 (Detroit Bd. of Ed.)

April 7, 1969

Dr. Ralph Kellogg
Director, Curriculum Division
Michigan State Department of Education
Lansing, Michigan

Dear Ralph:

As I indicated on the phone last Thursday, everyone in Detroit, individually, is quite willing to work out arrangements to proceed along the lines of Dr. Crawford's request of March 24 concerning my services. The mechanics of carrying out these desires have raised some rather serious roadblocks, however. Specifically, although we have identified a qualified person to replace me, he may have to be used to substitute for the head of one of our regional laboratories who has become seriously ill. If my potential replacement must be used in this manner we would have to pull a person from a school, a very difficult and undesirable step halfway through a semester. It also seems that I must be paid all fringe benefits if I work even one day a week. Dr. Byerly and I feel that I must keep my administrative hand in the Detroit laboratories the balance of this school year. Finally, I have either been on loan or leave for the last two school years. The last point is basically one related to my personal future in the system, but is another reason for at least part-time continuity on my part when school is in session. In summary, "Barkis is willin" but the system seemingly is not.

A possible alternative, which has only two disadvantages that I can readily identify, and would handle the above objections, would be the one I mentioned on the phone---my doing the job during the summer with some random vacation days off for initial work-up during the rest of the spring. The disadvantages would be a further delay in your timetable and the greater difficulty of contacting key personnel during the summer months. The advantages would include full time application on my part, availability of experienced substitutes for the laboratory, being off during a period of low initial administrative activity, and the fact that the summer is viewed as an "off season" in regard to school system demands. Dr. Byerly feels that a full time summer leave would not present the problems a part time spring leave would. Would such an arrangement be a viable alternative in your view or would it occur too late or present other problems.

If it would be a viable alternative, a possible schedule, which would utilize the originally agreed upon 57 days, would be: June 16 to July 25 (29 days) and August 4 to 29 (20 days). The eight remaining days could be used for preparation this spring and/or final polishing in September. I am planning my personal vacation with the family for the week of July 28th and have therefore held that time out.

Attached you will find three items of interest. Two of them are descriptions of USOE sponsored institutes on educational information centers. The first of these in particular (New Mexico) has direct relevance to creation of the state information system as well as a Department of Education information center. I am applying for the first one and if we can work things out for this summer could put the stipend ($75) toward transportation. Either of these institutes would be excellent training for the person who is going to be responsible for the ongoing operation of the Department's center. Would you or Frank Scannell have a potential candidate at this time? The third item is a model for the knowledge utilization and dissemination process from CRUSK. It is quite parallel to the Guba-Clark schema, but seems more flexible. Just food for thought.

Dr. Byerly is going to be out of town this week. He could be contacted early next week. I will be in most of this week if you would like to discuss any of the above.

I sincerely hope that we can work out some mutually acceptable arrangement as I am most enthusiastic about the project. I fully realize that my inability to work out the details in Detroit for this spring may preclude my participation. If this is the case, I appreciate the opportunity which has been extended and hope that there will be other contexts in which we can cooperate in the future.

Sincerely,

George H. Grimes, Supervisor
Curriculum Laboratories

GHG/b

Enc. 3

COPY

STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
Lansing, Michigan 48902

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Superintendent of Public Instruction

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April 23, 1969

Mr. George Grimes, Supervisor
Curriculum Laboratories
Detroit Public Schools
5057 Woodward
Detroit, Michigan 48202

Dear George:

This is a brief note to indicate that your letter and your communication from Dr. Byerly has been discussed with Dr. Crawford who has just returned from a period of illness. We do plan to contract with you for the master plan study during the time which you suggested. Shortly I will firm up the details and communicate them to you in order that we can sign the contract and you can proceed with your preliminary plans.

Because of some problems in the past with outside writers of documentary master plans, etc., most notably the student-written document, you should understand that the contract will be for you to do the study, write the reports and make the recommendations to the Curriculum Division, Department of Education, and that there would be no automatic commitment that the report will be published by the Department or implemented in the exact fashion that it was made. This seems that it should not have to be said and I am sure that you would understand this. However, previous experience with certain projects have led us to communicate this precedent note in advance. Hopefully, my purpose in wanting you to do the study is that it would lead the way to the development of an information system here at the State Department.

Sincerely,

Ralph E. Kellogg

Ralph Kellogg, Director
Curriculum Division

RK:BK

REQUEST FOR THE SUPERVISOR"S SERVICES TO HELP DESIGN AN EDUCATIONAL INFORMATION SYSTEM FOR THE STATE DEPARTMENT OF EDUCATION

George H. Grimes. Supervisor, Curriculum Laboratories

Dr. James D. Berry, Director, Department of Instructional Services

April 28, 1969

As indicated in the attached letter from Dr. Ralph **Kellogg**, the State Department of Education would like to consummate arrangements for my services during the coming summer, if possible, to help design an educational information system for the State of Michigan. As you know, we were unable to work out arrangements for such services this spring following a request from Dr. Ferris Crawford, Deputy Superintendent, Department of Education (see Attached). Following consultation with Dr. Byerly and yourself, the summer alternative detailed in my April 7 letter to Dr. Kellogg (attached) was proposed. The contract mentioned in Dr. Kellogg's recent letter would be to specify the factors relevant to my summer employment, most of which are included in the April 7 letter.

I sincerely feel that it would be of definite benefit to the Detroit Public Schools, the State of Michigan, and my professional growth for me to engage in this activity. I see no real disadvantages to the summer situation, assuming it would be my ongoing responsibility to keep in touch with the Detroit laboratory situation. I will be based in the Detroit area under the tentative agreement discussed with the State.

In terms of a replacement for me at the Schools Center laboratory, I see two distinct possibilities. If the selection process for the Junior Administrative Assistant to replace Mr. John Titus is completed as planned, the successful candidate will be placed as of June 16, the day my activity with the State is projected to start. It is very probable that the successful candidate for the Stevenson job will be experienced in the operation of a curriculum laboratory. Perhaps the person who is second on the eligibility list could be offered summer employment in my stead in the ongoing Schools Center operation. This would be an excellent training opportunity. Anyone high on the eligibility list would be highly qualified to operate a laboratory. Mr. Philip Carrington, who is an Esrp at the Stevenson laboratory until selection of the permanent administrator of that facility is selected, would be another excellent replacement possibility. If the selection process is not completed by the end of this semester, I would recommend that the person who has the most experience operating a curriculum laboratory, Mr. Mike Syropoulos, be approached to be my substitute. Mr. Syropoulos has demonstrated his high competence for such a role.

One personal aspect which I feel must be resolved is allocation of my vacation time. I normally take at least two vacation weeks during the summer. I have made arrangements for a cottage for the week of July 21. I have also indicated that I would be off August 13 through 20. What arrangements could be made for me to take these vacation days while still providing a replacement? My regular salary would pay for the substitute and my vacation days have already been earned. I would cover other fringe benefits, such as insurance, from my own resources but there is no way for me to "spend" may accumulated vacation days if I do not take them this summer (I project that I will have 20 available as of mid-June).

REQUEST FOR THE SUPERVISOR'S SERVICES TO HELP DESIGN AN EDUCATIONAL INFORMATION SYSTEM FOR THE STATE DEPARTMENT OF EDUCATION

In view of the above and the attached letters, I would like to request permission to enter into a contract for my services with the State Department of Education for the period from June 16 to August 29, 1969 during which time I would be on an unpaid leave from the Detroit Schools. Your positive action on and transmission to this request to Dr. Byerly is solicited.

REQUEST FOR THE SUPERVISOR'S SERVICES TO HELP DESIGN AN EDUCATIONAL INFORMATION SYSTEM FOR THE STATE DEPARTMENT OF EDUCATION

George R. Grimes, Supervisor, Curriculum Laboratories

Dr. James D. Berry, Director, Department of Instructional Services

April 28, 1969

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STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
Lansing, Michigan 48902

IRA POLLEY
Superintendent of Public Instruction

June 10, 1969

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Ex-Officio

TO WHOM IT MAY CONCERN:

This letter is for the purpose of officially introducing you to Dr. George H. Grimes, Supervisor, Curriculum Laboratories, Detroit Public Schools, Detroit, Michigan.

During the summer months Dr. Grimes is employed by the State Department of Education as a part of the ESEA Title III effort to assist us in the development of an information system. This information system would be concerned with providing an instructional program and other curriculum information to members of the Department of Education and linking the State Department of Education system with similar operations in local cities.

Dr. Grimes will want to discuss with you your thinking of the kinds of information you most need in this area within the Department.

Sincerely,

Dr. Ralph E. Kellogg
Director
Curriculum Division

REK:ms

MICHIGAN DEPARTMENT OF EDUCATION
AGREEMENT FOR PERSONAL SERVICE

THIS AGREEMENT, made and entered into as of this 13th day of June, A.D., 1969, by and between George Grimes, 20647 Hunt Club Drive, Harper Woods, Michigan 48236, hereinafter referred to as the CONSULTANT, and the Michigan Department of Education, hereinafter referred to as the DEPARTMENT:

WITNESSETH:

WHEREAS, the DEPARTMENT desires to engage the hereinafter stated services of the CONSULTANT; and

WHEREAS, the CONSULTANT is willing to furnish said services to the DEPARTMENT;

NOW, THEREFORE, IT IS HEREBY AGREED by and between the parties hereto that this agreement will be accomplished in accordance with the provisions set forth below, said provisions being a part of this agreement.

THE CONSULTANT SHALL:

1. Provide consultant services in the conduct of a master plan study for an information system. Such study will describe the purpose, functions, organization, the necessary personnel and physical requirements of an information system within the DEPARTMENT. The proposed system is to link with other parts of a statewide information system which may include intermediate and/or local school districts and colleges and universities.

2. Submit billings to the DEPARTMENT for services rendered in accordance with the conditions and schedule outlined in Addendum I.

3. Perform such services in and at Lansing, Michigan, or such other locations as the Superintendent of Public Instruction shall prescribe.

THE DEPARTMENT SHALL:

4. Pay the CONSULTANT in accordance with the schedule outlined in Addendum I.

FY 68-69

ACCT. NO. B S U
FUNCTION SOURCE

FY 69-70

ACCT. NO. B S U
FUNCTION SOURCE

5. In the event this agreement is terminated prior to completion, the CONSULTANT will be reimbursed at the stated rate for the portion of services actually furnished.

6. This agreement is personal to the parties and is not assignable.

7. Either party may terminate this agreement after not less than thirty (30) days notice to the other.

8. This agreement shall be in force for the period beginning June 16, 1969 and ending October 15, 1969.

9. The parties hereby covenant that they will not discriminate against any employee or applicant for employment to be employed in the performance of this agreement, with respect to his hire, tenure, terms, conditions, or privileges of employment, or any matter directly or indirectly related to employment because of his age, except where based on a bona fide occupational qualification, or his race, color, religion, national origin, or ancestry; and they will require a similar covenant on the part of any contractor or subcontractor employed in the performance of this agreement.

10. Payments made under the conditions of this agreement are subject to audit by the Department of Education.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed the date and year first above written.

Date: June 13, 1969 By Robert Hornberger
For the Superintendent of Public Instruction
MICHIGAN DEPARTMENT OF EDUCATION

Date 6-27-69 By

STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
Lansing, Michigan 48902

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Superintendent of Public Instruction

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June 18, 1969

Mr. Thomas Clements, Chief
Research Utilization Branch
U. S. Office of Education
Washington, D.C.

Dear Tom:

Confirming our telephone conversation of Tuesday, June 17th, I would like to restate that I am on leave from the Detroit Schools this summer to "conduct for the Michigan Department of Education, a master plan study for an information system, such study to include the description of purpose, functions, organization, and necessary personnel and physical requirements of the information system; such system to link with other parts of a statewide system which might include intermediate and/or local districts and colleges and universities", so says the contract. My projected pattern is to do information gathering, from persons and print resources, between now and the end of July and to write during August. My final rough draft is due August 29th.

Within this pattern, could you, on Monday, July 14th, be the main resource person for a seminar on (knowledge) information systems and research utilization. The audience will be the staff of the Bureau of Educational Services at the Michigan Department of Education. About 50 persons should attend. The seminar would be an informal one consisting of a general presentation by yourself on (a) the nature of the educational information process, and (b) specific focus on methodologies for providing effective research utilization. In essence, the opening presentation you gave at the MOREL conference last November, plus reporting on your present work at Brookings. I would assume that this should take about an hour. The balance of the seminar would involve a give and take discussion and further exploration on the part of all present, chaired by Dr. Ralph E. Kellogg, Director of the Curriculum Division, or myself. The total time for the seminar would be about an hour and a half, starting at 9 or 10 o'clock, depending on your travel schedule.

In the afternoon you and I could get together on specifics of the Michigan plan. I will draw up a list of questions for your consideration and reaction. We may wish to involve some others in this more limited session, but I am not sure of that at this point.

As I indicated on the telephone, the State Department will reimburse you for any travel expense not covered by other funds. I understand that your per diem is covered by USOE.

I am very happy that you can arrange to meet with us on the 14th. I feel that there is a significant opportunity here in Michigan to establish an educational information system. Your advise and counsel will be invaluable to the end.

When you have checked out your travel arrangements, contact me and we will set up a specific time for the seminar. As I mentioned, I will be driving up from Detroit if you cannot make easy connections into Lansing. I look forward to hearing from you.

Regards,

George Grimes, Consultant
Information Services

GG:ms

cc: Dr. Ralph E. Kellogg

SUBJECT: INITIAL REPORT -- DEPARTMENT OF EDUCATION INFORMATION SYSTEM

FROM : George H. Grimes, Consultant, Information Services

TO : Dr. Ralph Kellogg, Director, Curriculum Division

DATE : June 25, 1969

The following report is intended to make you currently aware of the progress of the Department of Education Information System project. Amplification on any sections below will be gladly given and comments and suggestions are solicited.

Purpose -- to conduct "a master plan study for an information system, such study to include the description of purpose, functions, organization, and necessary personnel and physical requirements of the information system; such system to link with other parts of a statewide system which might include intermediate and/or local districts and colleges and universities. The purpose of the study...(is) ...to study the needs within the Department for an information system, to project information system needs statewide and to bring to focus on this study all of the background, research, and operational information available regarding information systems" (contract language).

Procedure

The study will be broken into three general phases.

A. Information gathering (June 16 to July 18 -- 25 working days).

B. System concept formulation and delineation (July 18 to August 29 -- 25 days). A final report, in final draft form, is due August 29.

C. Rewrite and final polishing (September -- 8 days).

During phase A, in addition to the gathering of information, a concomitant purpose will be to make departmental and other personnel aware of the effort to investigate the creation of an information system to be of service to them and to "sensitize" them to its potential value.

Activities

A. Interviews -- The initial 12 interviews suggested by yourself, and scheduled by Mrs. Schaar, have been completed. The attached interview schedule was utilized (note the projected use of information gathered). Most were tape recorded for the key question section of the interview schedule.

June 17 -- Kearney and Swanson

June 18 -- Beekman and Rothermel

June 19 -- Scannell and Butcher

June 20 -- Berkowitz

June 25 -- Goodson, Kocsis, and Peckham

June 26 -- Pierce and Pfau

June 27 -- Ruffing

A discussion with Dr. Crawford had taken place prior to the construction of the interview schedule (June 4) which was not recorded but was attended by James Doyle, project research associate.

Other interviews that were suggested by the initial group include:

June 19 -- Dr. Leonard Demak (Project STADIS)

June 20 -- Mr. Paul Lutzeier (Project STADIS)

June 27 -- Mr. James Bebemeyer (Research Utilization)

June 30 -- Region Title I Coordinators

July 7 -- Mrs. Jean Walline (Special Ed)

July 9 -- Title III, intermediate district level, project directors

Not yet scheduled -- Cass Branch (legislative) Library; Professional Library; Mrs. Mary Ann Hanna (chief school library consultant); and Robert Graham (Bureau of School Services, U of M).

It is also anticipated that a three or four day swing will be taken through the state prior to July 18 to interview key local and intermediate district educators. Dr. Harry Groulx of the Title III staff has expressed his willingness to identify key out-state personnel for this trip. The same general interview schedule and procedures will be used as with departmental personnel and others to date.

B. Literature Search -- Mr. James Doyle, project research associate, has been conducting an up-dating literature search in Detroit. His deadline for a compilation is July 1 with a full work-up on significant items completed as of July 14. Mr. Doyle's major search areas are (a) theory on the provision of state-wide and regional information services in general and in education in particular, (b) practice in the above, and (c) general theory of information transfer and knowledge utilization. The material reviewed in my dissertation is assumed as a given in the search, the major activity is therefore related to very recent sources in the main.

C. Supporting Expert Opinion -- Arrangements have been made to have two of the outstanding educational information service specialists in the country lend their knowledge and experience to the project. Each will also conduct a seminar for departmental staff on their special activities for the purposes of orientation, providing information, and sensitizing the staff to the real values which accrue from an effective information system.

On July 14, Mr. Thomas Clements, Chief of Research Utilization, U. S. Office of Education, will speak to an overview of information utilization patterns and effective research utilization as derived from his present investigation being conducted at the Brookings Institution. On July 28 (or perhaps August 11) Dr. Paul Hood, Director of the Communications Program for the Far West Laboratory for Educational Research and Development (Berkeley, California), will address himself to systems for effective information utilization at the local school district level. Both of these gentlemen are not only expert in their areas but have been engaged in longitudinal studies which are oriented toward practical payoff.

D. Other Activities -- The investigator visited the USOE/MSU Regional Instructional Materials Center for Handicapped Children and Youth (June 19) and has talked informally with numerous Divisional personnel. He has also attended an Educational Media Conference on the Diffusion and Adoption of Technological Innovation in Education at Indiana University (June 23-24). Most of the key persons in the information diffusion field presented papers at this conference (Brickell, Havelock, Rogers, Guba, and others). A particular interview is being set up with Dr. Havelock for August when he returns from abroad.

E. Projected Activities -- Most of the month of July will be spent carrying out the above activities which have not taken place to date. The major component not yet structured is the swing through the state. It is hoped to have this set up by early next week. It is also anticipated that additional interviews will be undertaken with departmental personnel with the areas of Title III and data processing being two foci. A review committee on project progress should also be set up for the end of the month (before July 18) if possible.

On July 2 the investigator will visit the information center at King-of-Prussia, Pennsylvania, which has been cited by the USOE as among the best in the country.

Commentary

The projected project plan seems to be moving ahead smoothly. Cooperation has been universal. Although some needs and resources patterns are starting to emerge, it is still too early to make meaningful and productive comments. The next interim report should produce some solid directions, however.

INTER-OFFICE MEMORANDUM

Curriculum Division

TO: Richard Barnhart, Don Goodson, Louis Kocsis, George Grimes

FROM: Dick Anderle

DATE: September 4, 1969

SUBJECT: Follow-up Procedures in Completion of George Grimes' Study

Meeting of August 29, 1969

PRESENT: George Grimes, Richard Barnhart, Louis Kocsis,
Don Goodson, Dick Anderle

Dr. Grimes delivered 15 copies of the final draft of the study, "A Proposed Educational Information System for the State of Michigan" to the above group sans bibliography and appendices. In order to complete the study by the October 15, 1969 date, stipulated in the contract, the following procedures were agreed upon:

1. By Wednesday, September 10, 1969, Dr. Grimes will deliver to Don Goodson; (a) At least 15 copies of the total bibliography, appendix and any other supportive material which was not included with the final draft; and (b) A draft of a cover memo explaining to the reviewers what is expected as the study is read. This memo will be edited by the above "in-house" group to include other appropriate information.

2. By Friday, September 12, 1969, the total study will be distributed to each of the Department reviewers. They will be asked to return the document to Don Goodson, with reactions, no later than Friday, September 26, 1969.

   Reviewers and Copy Numbers

#1	Peggy Miller	# 7	Phil Kearney	#12	Charles Ruffing
#2	Ferris Crawford	# 8	Harry Groulx	#13	Ken Swanson
#3	Louis Kocsis	# 9	Ed Pfau	#14	Marv Beekman
#4	Don Goodson	#10	Dick Barnhart	#15	Jane Walline
#5	Frank Scannel	#11	Jack Banning		
#6	Bill Pierce				

3. By Tuesday, September 30, 1969, all 15 copies of the study, with comments and reactions, will be returned to George Grimes for his use in preparing the final report.

4. By Wednesday, October 15, 1969, George Grimes will return the original and 5 copies of the revised and completed study to Don Goodson.

RDA:clt

INFORMATION TRANSFER FOR EDUCATORS

A Stratified Bibliography

Supportive to the Development of a
Michigan Educational Information System

by

George H. Grimes
Consultant, Information Services

and

James M. Doyle
Research Associate

MICHIGAN DEPARTMENT OF EDUCATION
1969

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BIOGRAPHICAL STATEMENT

NAME: GEORGE HIRAM GRIMES

BIRTH: FEBRUARY 12, 1935, DETROIT, MICHIGAN

EDUCATION: ELEMENTARY AND SECONDARY, DETROIT PUBLIC SCHOOLS

B.S. (EDUCATION, SOCIAL STUDIES), WAYNE STATE UNIVERSITY, 1957

M.ED. (SECONDARY SOCIAL STUDIES EDUCATION), WAYNE STATE UNIVERSITY, 1959

M.L.S. (LIBRARY SCIENCE), STATE UNIVERSITY OF NEW YORK, COLLEGE AT GENESEO, 1965

ED.D. (CURRICULUM DEVELOPMENT), WAYNE STATE UNIVERSITY, 1968

POSITIONS: TEACHER, ELEMENTARY (SELF-CONTAINED HOMEROOM), CENTERLINE, MICHIGAN, 1957-60

TEACHER, JUNIOR HIGH SCHOOL (SOCIAL STUDIES-ENGLISH BLOCK TIME), DETROIT, MICHIGAN, 1960-62

TEACHER, JUNIOR HIGH SCHOOL (LIBRARY), DETROIT, MICHIGAN, 1962-64

REFERENCE LIBRARIAN, DETROIT PUBLIC LIBRARY MAIN BRANCH (PART-TIME), 1963-64

INSTRUCTOR, DEPARTMENT OF LIBRARY SCIENCE, COLLEGE OF EDUCATION, WAYNE STATE UNIVERSITY, DETROIT, MICHIGAN, 1964-65

SUPERVISOR, DETROIT PUBLIC SCHOOLS CURRICULUM LABORATORIES, 1965 TO PRESENT

COORDINATOR, INFORMATION SERVICES, MICHIGAN-OHIO REGIONAL EDUCATIONAL LABORATORY (ON LEAVE FROM DETROIT SCHOOLS), 1967-68

PART-TIME FACULTY, WAYNE STATE UNIVERSITY, COLLEGE OF EDUCATION, 1965 TO PRESENT

CONSULTANT, INFORMATION SERVICES, MICHIGAN STATE DEPARTMENT OF EDUCATION, MICHIGAN EDUCATION INFORMATION SYSTEM PROJECT (ON LEAVE FROM DETROIT SCHOOLS), SUMMER, 1969

POSITIONS CONT.

CONSULTANT, INFORMATION SERVICES AND MEDIA MATERIALS (VARIOUS PROJECTS AND PROGRAMS)

MEMBERSHIPS:

MICHIGAN AUDIOVISUAL ASSOCIATION

MICHIGAN ASSOCIATION OF SCHOOL LIBRARIANS

STATE COMMITTEE 1970 DIVISION OF AUDIOVISUAL INSTRUCTION (DAVI) CONVENTION

METROPOLITAN DETROIT AUDIOVISUAL ASSOCIATION

INSTRUCTIONAL MATERIALS COMMITTEE, COOPERATIVE CURRICULUM PROGRAM, STATE OF MICHIGAN

JOINT DATA PROCESSING COMMITTEE, REGIONAL EDUCATIONAL LABORATORIES

PHI DELTA KAPPA, HONORARY EDUCATION FRATERNITY

AV COMM... '70 COMMITTEE (DIVISION OF AUDIOVISUAL INSTRUCTION)

ADVISORY COMMITTEE, AUDIOVISUAL TECHNICIAN CURRICULUM, MACOMB COUNTY COMMUNITY COLLEGE

ADVISORY COMMITTEE, ERIC INSTRUCTIONAL MATERIALS PROJECT, ERIC CLEARINGHOUSE ON TEACHER EDUCATION

OFFICES:

SECRETARY, DETROIT CHILDREN'S BOOK FAIR EXECUTIVE COMMITTEE

DIRECTOR, WAYNE STATE UNIVERSITY LIBRARY SCIENCE ALUMNI ASSOCIATION

PRESIDENT, WAYNE STATE UNIVERSITY SOCIAL STUDIES CLUB

PUBLICATIONS:

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